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ABSTRACT

This study examines economic development in Third World countries and the use of portable video systems in development projects. The study, conducted in 1985, attempts to measure the level of effectiveness of videotape programs as a communication tool for training rural subsistence women in Honduras in technical aspects of pig-keeping. Classical communication and development models posit a downward, vertical process from small elite to mass of receivers. Participatory communication, however, suggests the involvement of marginal groups in their own social and economic futures. From the 1940s to the early 1970s, development theories shifted from emphasizing modernization toward more choice-based economic and public-policy approaches. Most modernization programs today continue to support a relationship in which one group is economically maintained at the expense of another. International development programs develop national modernization projects that often fail to incorporate effective input from local people. By entering the global market, developing nations often deny themselves opportunities for economic self-sufficiency. It may be possible to have successful small-scale development programs which help promote self-sufficiency among marginal groups without requiring the dramatic economic, political, and social changes necessary for modernization. Advanced video technology widens opportunities for improved participatory communication. The concluding chapter suggests that the Honduran women understood and used the videotaped pig-keeping information. It recommends changes in the videotape project, however, to make it more participatory and more responsive to local needs. A bibliography with over 80 items is followed by extensive appendixes which include a questionnaire given to the Small Scale Livestock Project population who went to the United States. (TES)

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THE EFFECTIVENESS OF VIDEOTAPE PROGRAMS AS A COMMUNICATION TOOL IN THE SMALL-SCALE LIVESTOCK FOR RURAL FARMING WOMEN PROJECT, HONDURAS

BY

LYNN JOHNSON-DEAN, B.A.

A Thesis submitted to the Graduate School
in partial fulfillment of the requirements
for the Degree
Interdisciplinary Master of Arts

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New Mexico State University
Las Cruces, New Mexico
May 1986

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ABSTRACT

THE EFFECTIVENESS OF VIDEOTAPE PROGRAMS AS A COMMUNICATION TOOL IN THE SMALL SCALE LIVESTOCK FOR RURAL FARMING WOMEN PROJECT, HONDURAS

BY

LYNN JOHNSON-DEAN

Interdisciplinary Master of Arts

New Mexico State University

Las Cruces, New Mexico, 1986

Dr. Steadman Upham, Chairman

This research study examines the use of portable video systems in development projects. The role of this communication medium is viewed as a theoretical construct that defines development programs from a different perspective. Specifically, the study attempts to measure the level of effectiveness of videotape programs, prepared on a portable video system in the field, as a communication tool for training rural subsistence women in Honduras in technical aspects of pig keeping. A portable video system was used in conjunction with the Small-Scale Livestock Project (OEF/AID) to train four groups of women within the project in three aspects of pig care. The results show that these videotape programs were a very effective method for training the rural subsistence women. It is suggested that the use of portable video systems in development projects be explored further, particularly within the context of using a portable video system as a participatory communication media to enhance communication among members of like socio-economic groups such as rural subsistence farmers.

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Chapter 1

INTRODUCTION

This research study attempts to measure the level of effectiveness of videotape programs, prepared on a portable video system in the field, as a communication tool for training rural subsistence women (RSW) in Honduras in technical aspects of pig keeping. The study was conducted from July to November 1985, in collaboration with the Overseas Education Fund (OEF) Small-Scale Livestock Project (SSLP) in four rural villages in the Department of Cortes, Honduras. The SSLP is a three year project, funded by the Agency for International Development (AID), which has organized women into cooperative groups in four villages. It has provided the women with financial loans and technical assistance to enable them to construct and operate small pig farms. It is hoped that by the end of three years the women will be able to manage successfully their pig farms as a commercial venture without outside funding, and that the women will become integrated into the agro-business economic sector of Honduras.

The aims of this research study were as follows: 1) introduce the concept of using a portable video system in an ongoing development project; 2) determine if a portable video system, operated by one person, could be used under field conditions to make relevant videotape programs; 3) ascertain whether such videotape programs, depicting living and working conditions similar to those of the viewers would be an effective training tool in teaching technical aspects of pig keeping to RSW; 4) measure the extent to which specifically targeted populations of women could learn from such videotape programs; and 5) determine whether portable video systems could be used as a horizontal communication tool

between similar rural subsistence women's groups in Honduras.

If the results of this study indicate that a portable video system can be used effectively within the SSLP, then the use of such systems as communication tools in developing countries (and in other development programs) should be explored further.

Classical Communication Model

During the last decade, there has been a move towards encouraging access to, and participation by, the targeted populations in development programs in third world countries, particularly in the communication field. This trend is a result of questioning the classical communication model as developed by Shannon and Weaver (1949) and modified by Rogers (1962 [see also Berrigan, 1979; Morehouse, 1979; Hooks, 1980]). In the classical model, primary communication is a downward, vertical process (vertical communication) where a small number of "superior" sources address themselves to a large mass of "inferior" receivers, and information and innovations are diffused and subsequently adopted throughout the social system. The classical communication model provides a strategy for analyzing and applying diffusion research and is an essential component of the traditional diffusionist theory of development (Rogers, 1962), where alteration occurs within the structure and function of a social system as a consequence of the process of diffusion.

Participatory Communication

In contrast, the ideology of participatory communication is related to the emergence of a new paradigm of development based on self-reliance and a redistribution of resources between social groups, urban and rural areas, regions and sexes (Jouet, 1978). This new paradigm of development

is based on a theory of marginality (Germani, 1973; Quijano and Weffort, 1973) which is an outgrowth of the dependency theory of development (Baran, 1963; Frank, 1967; Wallerstein, 1974). The theory of marginality is concerned with the existence and proliferation of marginal groups, particularly within the third world, and seeks to explain why such groups exist and how such groups can be liberated from their marginal status. Marginal groups are defined as groups, regardless of size, which are denied access to the social, economic and political structures of their country and are unable to participate in activities which can affect change in such structures. (The theory of marginality will be discussed further, in the analysis of the theories of development.) Development programs based on the theory of marginality stress the need to reach marginal groups and attempt to incorporate such groups into the social, economic and political processes of third world countries.

Participatory communication strategies, therefore, are seen as methods whereby marginal groups utilize communication media to promote social change and thus the groups become involved in the social, economic and political processes. Participatory communication at a national level is dependent upon participation by a majority of people in political power and governmental decision-making. The underlying reality in most third world countries is that governmental decisions are made by a small number of people and the majority of the population is marginal, outside of such processes. Communication systems are integrally related to both national economic and political systems, and an analysis of mass media can only be understood within this context. The majority of social and economic structures in third world countries are shaped by economic dependency, and often the societies are stratified and dominated by

powerful oligarchies. Access to mass media and participatory communication on a national scale is very difficult as a result of the following constraints: 1) lack of communication infrastructure, 2) exclusion of political or ideological views contrary to those held by those in political power, and 3) an elitist attitude held by media professionals who determine and control media access.

Communication technology has advanced rapidly in recent years and with its great strides, our concepts of time, space and distance are changing. It is now technically possible, through new modes of communication, including camcorders, portable video systems, satellite broadcasting, audio and video cassettes, telexes, telephone links, and computer modems for participatory communication and dialogue to become a reality on a global scale. Development programs which integrate the concept of participatory communication strategies on a small scale and utilize such technological media as mentioned above, may be able to affect more successfully marginal groups than development programs which use mass media. Such strategies would not suffer under the same constraints as those faced by national participatory communication strategies.

Theoretical Framework

Traditionally, both national and international development work has been structured within theoretical frameworks that revolve around the concept of technological and informational development, downward vertical transfer from the "superiors", diffusion and acceptance by the "inferiors". In this study, I have approached my field research from a theoretical perspective of marginality which defines development and the use of communication media in such development programs in a different

way. Such a perspective defines development within a global dependency context as the ability of target populations to participate in social, political and economic processes such that they are able to attain basic necessities and maintain at least a minimal standard of living. This field study measures the effectiveness of a portable video system as an information source and as a participatory communication method in a specific development project. To understand better the philosophical approaches and implementation of current development programs, it is important to review the development literature from an historical perspective.

The definitions of terms and the theoretical perspective offered here are not exclusive or definitive, they are offered as one alternative approach to traditional development work.

Definitions

In order to consider the purpose and objectives of a specific development program within a theoretical construct, it is first necessary to define my terminology. "Vertical communication" is defined as any form of communication which is transferred between people of different socio-economic and cultural background and "downward vertical communication" connotes a superior status, inferior status relationship. "Horizontal communication" is any form of communication which is transferred among people with similar socio-economic and cultural backgrounds. "Development communication" is any form of communication used by development programs. "Target" population refers to those people the development program is attempting to reach. (I do not like this dehumanizing term, which implies that a population is a "target", but will use the word for lack of a better one).

The general terms of "foreign aid", "modernization", and "development programs" have many connotations with inherent value judgments. They have been so widely applied to describe so many different conditions and situations that their usefulness is limited to vague expressions of generality. For this reason, the following definitions will be used for the purposes of this specific study. Foreign aid will be defined strictly within an economic sense, as technological or financial loans made by an industrialized country to a third world country for the ostensible purpose of third world development, but also for the tangential purpose of economic and/or political gain for the industrialized country. Whether admitted or not, this ethos is a major consideration in any foreign aid policy and development programs usually require a technological component which is obtained from the donor country.

The unit of analysis when speaking of both foreign aid and modernization is national government, national and international relationship and world economy. "Modernization" is conceived as a process of change which tends toward industrialization and is characterized by free-market economic relationships. [1] "Third world countries" is an expression which will be used, for lack of better terminology, to refer to those countries in the world whose historical trajectories have been formed at least in part by colonial or imperialistic impact and that presently lack: 1) a large and stable middle class; 2) an effective

[1] An alternative to "free markets" which is generally not considered a viable alternative by the Western industrialized countries and will only be mentioned here, is the centralized planning development concept with national goals, which is characteristic of countries with a Socialistic or Communistic orientation and an essentially Marxist/Leninist economic philosophy.

administrative bureaucracy; 3) a functional infrastructure; 4) diverse industries; and 5) a minimal standard of living for the majority of its people. Even though "third world country" implies the existence of "first" and "second world" countries, thereby inferring a ranking of countries, this terminology is less pejorative and ethnocentric than the terms "underdeveloped", "less developed" or "developing". Likewise, the term "industrialized countries" will be used in preference to the more common expression "developed countries".

"Development programs" are here defined as programs which seek to provide the following: adequate food, shelter, health, education, training or employment, on an individual or community basis to targeted populations. Development programs may be national in scope and include the "development" of infrastructures and other projects considered essential to national growth. For the purposes of this study, however, development programs will be defined from a marginality perspective as those programs which are designed to raise the standard of living of marginal groups, the subsistence populations of third world countries. Such development programs differ from modernization in their unit of analysis, scope and inevitability.

Chapter 2

A REVIEW OF DEVELOPMENT LITERATURE

Development literature in the United States of America began after the Second World War in the early 1950's with the demise of Old World colonial empires. At this time, political scientists in the West looked upon the majority of the world outside of industrialized Western Europe and the USA as underdeveloped, pre-rational, pre-industrial and pre-state (Weber, 1950). Indigenous populations of third world countries were generally regarded to be savages and their societies and cultures as primitive, backward and traditional. Development became characterized as modernization, a necessary, and desirable evolutionary change from traditional underdeveloped societies to emerging, industrialized nation-states. Political scientists, such as Parsons (1966) and Riggs (1964) viewed political systems from a system-function model supported by an equilibrium theory which distinguished types of political systems in terms of the structures which perform the necessary functions of all political systems. Development was viewed from the perspective of evolutionary comparison between two or more societies and Eisenstadt (1966), Pye (1966), and others categorized patterns of political development by the stages or phases that societies pass through. It was assumed that all third world countries were homogeneous and would evolve through a series of the same necessary institutions for development. Development during this time was defined, especially in North America, as a progressive movement towards the establishment of political and social institutions modeled after those of Western industrialized countries, particularly those democratic institutions of the United States of America. European governments continued to believe that the evolutionary

process through continued enlightenment by collaboration would result in modernization. Development was measured by the extent to which third world countries were able to establish their own political and social institutions which emulated those of Western industrialized countries such as 1) "competitive" political parties, 2) a "rational", legal system, 3) an "efficient", administrative government bureaucracy, and 4) "popular participation" in the political process. (The United States of America [USA]) still tends to judge free elections, by a concept based on the voting process in the USA not based upon the political and social realities which exist in third world countries.)

The definition of development was then extended to the individual. Individuals from traditional societies who adopted new technologies and change were studied for common social characteristics and these characteristics were delineated as being typical of the developed person. These attributes were ethnocentrically defined in various ways including: achievement motivation (McClelland, 1961), need hierarchy and the progression towards self-actualization (Maslow, 1954) and (Aranoff, 1967), entrepreneurship (Hagen, 1962), and the Protestant work ethic (Weber, 1950). Development was measured by the extent to which such attributes became dispersed among individuals throughout the society. If the individual changed, i.e., developed, then the traditional society comprised of such individuals would also develop or proceed along the modernization path.

The advocates of modernization believe that the importation of technology and democratic institutions to third world countries are the key to development and will eventually solve all of the problems of underdeveloped countries or regions. This importation is accomplished by the benevolent actions of the Western industrialized countries and is

diffused and disseminated through a well-meaning elite in the third world countries to the traditional, but generally receptive masses. Many traditional theories of development can thus be labeled as diffusionist theory and as naive.

In the mid-1960's with the advent of the Vietnam War and the rise of authoritarian rule in many emerging nation-states, the optimism of the 1950's began to wane. Europe began to play a significantly lesser role in world policy-decision making, their economies could no longer support the remnants of empire building and the colonial process. The USA with its superior economic wealth assumed almost total domination in the development process market. The evolutionary theories of development were to a large extent discarded as being unrealistic, as it was realized that the transition rom tradition to modernity was not a simple linear process which would occur in the same way for each country. The theory of modernization did not disappear. The theory became modified to include the crises theory. According to the crises theory, a third world country developed by confronting crises and overcoming them, crises such as 1) legitimization of the government, 2) the government's ability to reach the country's populace and integrate them into the political process, 3) participation by the majority of people in social and economic processes, 4) identification of the people with a national government, and 5) an equitable distribution of goods and services within the country (Pye, 1966).

As the Cold War between the Soviet Union and the USA solidified in the 1960's, there was an increasing concern by some political scientists in the United States with order and international stability (O'Brien, 1972). Nation-states, constructed by their governing elite, became the

building blocks of international order and democratic institutions and ideals were considered by the West, especially by the USA, to be far less important than the maintenance of a centralized, stable government and economic order. Development was redefined as the growth of institutions competent to deal with the strains of social mobilization and political participation (Huntington, 1968).

There was also a movement at this time to look at development from a behavioral and empirical point of view which tried to relate social processes to change (Lerner, 1958; Deutsch, 1966). Politics was increasingly viewed from a purely capitalistic perspective as being dependent upon both economic and social forces. This behavioral view emphasized the socio-psychological environment of the political system including such inputs as political socialization, political culture and belief systems, to the exclusion of process and policy outputs.

In the late 1960's and early 1970's the diffusionist theory of development was strongly attacked by the dependence theorists. The dependence theorists such as Baran (1963), Frank (1966, 1967), Wallerstein (1974), Dos Santos (1973) and Magdoff (1969) in large part based their theory upon Latin American countries and their development. Although the dependence theorists have been dismissed by some (Pye, 1966; Higgott, 1983) as neo-Marxists and for their radical stance towards development, their contribution to the development literature should not be ignored. They view development not as a harmonious, progressive transformation of economic and social institutions but as an exploitative economic process whereby certain specific sectors (nations, social classes, and groups) dominate other sectors and maintain an interdependent economic relationship which results in increased "underdevelopment". With the advent of the dependence theory model,

economic structures and relationships were given new importance in the discussion of development.

Apter (1965) and Almond (1965) extended the importance of the concepts of economic relationships in development to include the ideas of political choices and the political effect of economic decisions. This choice-based political economy concept has resulted in a shift in modernization theory to a public policy approach (Higgott, 1983) yet it still incorporates the earlier crises approach to development strategies. The public policy approach focuses on decisions and decision-making with an emphasis on maintaining elites favorable to the industrialized nations in political power. Policy-oriented literature, originally developed for use in Western industrialized countries does not take into account the numerous exogenous factors which affect third world countries; in particular, the economic relationships of such countries to the West. If an oligarchy or head of government of a third world country (such as Somoza in Nicaragua or Marcos in the Philippines) is intimately tied to the maintenance of economic policies of industrialized countries such as the USA, it is only with the consent of the USA that such governments will fall. Due to the complexity of such economic relationships and numerous factors outside of the third world country which affects its development, this approach is limited in its application to third world countries.

The theory of marginality is an extension of the dependency theory with the same global view of dependent relations with a center and periphery (De Janvry, 1975; Wallerstein, 1974), both on an international and national scale. Underdevelopment is a process perpetuated by the economic relationships between industrialized and third world countries.

Underdevelopment is also a process evident on a national scale where part of the population, is kept in a state of marginality so that a small elite can maintain themselves as the social, political, and economic decision-makers (De Janury, 1975). Quijano (1973) and Lessa (1975) suggest that this state of marginality is due to the economic stranglehold which the governmental elite exercises over the majority of the population and at a macro level, the economic stranglehold of the industrialized countries over the third world. As De Janvry (1975) says:

> The concepts of periphery and marginality are essential for the construction of a theory of underdevelopment. The periphery is that portion of economic space which is characterized by backward technology, with consequent low levels of remuneration of the labor force and/or by advanced technology with little capacity to absorb the mass of the population into the modern sector. These excess human masses created by the very process of economic growth are the "marginals". They can be found in all sectors of the economy and are functionally related to the modern sector which needs them to face the conditions under which growth occurs in the periphery.

Germani (1973) argues, however, that the state of marginality is primarily due to the domination of one cultural group over another. Although this cultural superimposition is characteristic of repressive, elitist groups, the ability of such elitists to maintain dominance over other majority groups for long periods of time must be due to economic factors.

Prior to World War Two, any concept of development was couched in terms of the development of the industrialized or developed "mother" country through the exploitation of the resources of the rest of the world. This exploitation was accomplished through colonial and mercantilistic institutions and structures. The basic relationships between world areas or countries from the 1500's to the early 1900's

consisted of both economic connectivity and interdependence. These four hundred years of history and the wider world perspectives that they offer should not be ignored when considering modern concepts of development and the present relationships between nation-states.

The political theorists of the last thirty years have variously emphasized among other concepts, the importance of 1) systems models (Parson, 1966; Riggs 1964), 2) the creation of democratic political and social institutions (Eisenstadt, 1966; Pye, 1966; Huntington, 1965), 3) the dispersion of the attributes of the developed individual (McClelland, 1961; Hagen, 1962; Maslow, 1954), 4) the socio-psychological environment of political systems (Lerner, 1958; Deutsch, 1958), 5) administrative and legal bureaucracies (Binder, et al., 1971), 6) competitive political parties and efficient political systems (Almond, Mundt and Flanagan, 1973), and 7) political choice and public policy approach (Almond, 1966; Apter, 1965; Anderson, 1975; Uphoff and Ilchman, 1972). Despite these various emphases, the most important factors in determining the development of a third world country is that country's own internal economic structure and its economic relationships to the rest of the world both from an historical and current perspective (Frank, 1972; Wallerstein, 1974; Petras, 1975; Baran, 1975).

The concept of development is also based on a normative judgment. As has been indicated above, "development" is both defined and conceived in numerous ways by different people at different times. Dudley Seers (1972) asks what it is that development really measures and concludes that the economist's measure of gross national product is not a good indicator of development nor is the political scientist's measure of the extent to which one country copies the social and economic institutions of Western industrialized countries. Seers argues that development is

the acquisition of the necessary conditions to achieve the potential of human personality; i.e., food, income, clothing, shelter, together with the reduction of poverty, unemployment and inequality.

In whatever way development is defined, it is important to understand its definition in specific contexts and to determine who or what is being developed by whom and for what purpose.

Chapter 3

THEORETICAL APPROACHES TO DEVELOPMENT IN THIRD WORLD COUNTRIES

The Process of Modernization

Modernization, as defined here, is a process or set of processes which encompass any efforts induced internally and/or externally to institute technological change on a national scale. Modernization does not, however, necessarily improve the lot of the individual, especially that of the subsistence farmer. In many cases, modernization which attacks traditional ways and social structures may benefit the country's economy, but bring about the demise of marginal, subsistence groups or communities. Modernization is an inevitable result of the previously described communication revolution which our globe is experiencing. It is difficult today for groups of people to live in isolation, and impossible for countries to do so. There are no third world countries which have not been exposed to the influences and effects of either the economic philosophy of Western countries or to the communistic centralized planning concepts.

There is a basic premise in development theory which suggests that to progress, third world countries must modernize and that this is assumed to be a desirable change by the Western industrialized countries and also by most ruling governments of third world countries. Often the stimulus for modernization programs comes from the latter's government officials. Most such officials desire to set in motion the processes of development so that their country can become "economically self-sufficient" and emulate the standard of living, as well as the economic

and political power base, of the Western industrialized countries of today. Little attention has been paid, however, to the effect of modernization upon marginal groups in third world countries and few development programs focus upon the results of such processes upon these groups.

An Historical Perspective of Modernizatiion

Modernization is a process of change, and that process will ultimately tend towards increased industrialization and more complex and technologically sophisticated societies. Before embarking upon a discussion of the implementation of modernization programs, it is first necessary and important to understand the historical involvement of Western industrialized countries with the third world. It is also important to consider how this historical trajectory affects third world countries today and their attitudes towards and acceptance of modernization programs.

"Dr. Myrdal argues that colonialism has prevented the governments of under-developed countries from pursuing deliberate policies of economic development" (Bauer, 1964:334). With the onset of exploration and mercantilism in the fourteenth, fifteenth and sixteenth centuries, came conquest and economic exploitation on a global scale. Lands that Western Europe "discovered" were looked upon as belonging to the discoverer. There was no question that these lands with their resources and people existed for the economic betterment of the mother country. New social, economic and political institutions were imposed upon existing structures in such a way that the cultural patterns of production and exchange which survived the initial ravages of conquest and disease were almost inevitably altered. Indeed this attitude is reflected in many

modernization programs today which are oriented towards producing markets and developing resources in third world countries which will benefit the countries or organizations that finance the modernization programs.

An indigenous labor force was needed to work large land areas taken over by the colonizers for the production of cash crops, and to convert the natural resources into sources of material wealth. The people of the third world countries were coerced into becoming this needed labor force. They were displaced from their land and removed from their self-sufficient lifestyle. Land was often forcibly taken from the indigenous population and they were forced into "resettlement programs" on marginal land (Wolf, 1957). "To the colonizers of Africa, Asia and Latin America, agriculture became merely a means to extract wealth - such as gold from a mine - on behalf of the colonizing power" (Lappe and Collins, 1983:201). Through such institutions as marketing boards, tax schemes, credit systems and government laws and prohibitions devised by the colonizers, the indigenous populations were no longer allowed to remain self-sufficient, could no longer grow their own food and were forced to work for others.

> The encomienda (system of dividing land and its inhabitants) in Hispanic America was a direct creation of the Crown. Its ideological justification was Christianization. Its chief function was to supply a labor force for the mines and cattle ranches, as well as to raise silk and to supply agricultural products for the encomienderas and the workers in towns and mines...Consequently, although it is true that the encomienda in Hispanic America (as well as the donataria in Brazil) might have originated as feudal grants, they were soon transformed into capitalist enterprises by legal reforms (Wallerstein, 1974:92).

This system of economic dependency and exploitation was not unique to Hispanic America nor to fourteenth century Europe. What is unique is that for the first time this economic dependency became a world system

and has continued as a world system. World systems within this context

> are defined by the fact that their self-containment as an economic-material entity is based on extensive division of labor and that they contain within them a multiplicity of centres...it is further argued that thus far there have only existed two varieties of such world-systems: world-empires, in which there is a single political system over most of the area, however attenuated the degree of its effective control; and those systems (world-economy) in which a single political system does not exist over all, or virtually all, of the space (Wallerstein, 1974:348).

A characteristic of a world system is that the system itself "legitimizes the ability of some groups within the system to exploit the labor of others" (Wallerstein, 1974:348). The modern world has evolved into complex economic interdependencies and even though the areas (periphery and semi-periphery) which have provided the labor, resources, and capital for the growth, development, industrialization and accumulation of capital in other areas (core), may have changed, the basic economic relationship whereby one area or group (core) is economically maintained at the expense of another area (periphery and semi-periphery), continues to the present.

Most modernization programs today support this process. They are financed directly or indirectly by the international banking system with the intent of expanding the world market and creating safe investments with a profitable return. A major objective of such programs is for third world countries to produce agricultural or material surplus, as a result of modernization, which allow them entry into the world market. By entering the world market, however, the third world country is forced into a dependent relationship with highly industrialized countries and the international banks and therefore can not compete effectively or develop internal economic self-sufficiency. Highly industrialized

countries establish a new market for their industrialized goods and the third world country becomes dependent upon these goods in exchange for limited cash agricultural crops or other primary products which are far less stable on the world market. The end result is that the third world country is placed in a dependent position, from which there is little, if any, escape.

> Since economic nationalism is part and parcel of political nationalism, it is not surprising that the industrialized countries seek to bend the Third World to further disadvantage through the manipulation of the supply and the prices of raw materials from developing countries while increasing the prices of finished products exported by the industrialized nations to the developing countries. Transfer of technology which is not geared to the direct needs and requirements of the developing countries is a major factor in maintaining this pattern of exploitation (Forge, 1979).

Underdevelopment, like modernization, is a process, and a process which is also generally controlled by Western industrialized countries. An "underdeveloped country" has been defined as a country which has not yet reached its full economic potential. The term, however, also refers to countries that, given their present economic situation, cannot develop further but stagnate in their own underdeveloped economic state. "To underdevelop" means to construct institutions and an economic balance in such a way that a third world country cannot improve its economic situation in the world, but rather, that its economic situation becomes worse. "Economic development and underdevelopment are the opposite face of the same coin. Both are the necessary result and contemporary manifestations of internal contradiction in the world capitalist system" (Frank, 1967:9).

Prior to the entry into the global market system, third world countries were economically self-sufficient within their own closed

system. They were not affected by price fluctuations of the world market but neither could they purchase goods produced outside of their own country or system. The question which must be asked is, are third world countries better off by participating in the global market, and who is making that value judgment, and on what basis? What does a third world country gain by becoming part of the global market system? If one accepts the core periphery model, then many third world countries, at this particular point in time, gain very little by being part of the global market. In fact, by serving as a periphery for the benefit of the core they deny themselves the opportunity to develop internal economic self-sufficiency.

Many modernization programs today are financed directly or indirectly by Executive Boards and Boards of Directors of international banks who engage in financial decision-making for the international banking system. These low profile individuals directly control monies which are loaned through the banks and indirectly through such agencies as the International Monetary Fund and the International Bank for Reconstruction and Development (World Bank). They advise multi-national corporations about investments and they determine which countries will receive credit or loans. They directly influence the allocation of monies by the Western industrialized countries for foreign aid.

Wallerstein's core has moved from a defined geographical area to multi-national corporations and that group of individuals who controls the international banks and world investment. The core of the world system has moved from the fourteenth century Italian banking families through various countries in Western Europe in the fifteenth to eighteenth centuries, to the USA in the first half of the twentieth century, and outwards to the international bankers and multi-national

corporations in the second half of the twentieth century. The core has shifted several times and will probably continue to move but the core as developed in Wallerstein's model could never logically move to the periphery. The periphery, third world countries, lack the necessary accumulated capital, occupational skills, economic organization and centers of trade and exchange control essential to form a core.

Limitations of National Development Programs

Most international development programs or modernization programs, are national in scope. There are three major reasons for this national emphasis: 1) foreign aid programs are designed to operate through the existing government and, in principle, should be applied nationally in order to reach the most people and have the greatest impact, 2) the economists' unit of analysis is most often the nation-state and economists define successful development on the basis of national economic indicators such as "the country's yearly percentage rate of growth in gross national product, the size of per capita income and its distribution, and the use of advanced technology in major production lines" (Dalton, 1971:219-220), and 3) people who develop and finance modernization programs generally view third world countries as nation-states capable of implementing national programs. Many third world countries, however, do not have the necessary administrative bureaucracy in order to be able to implement national programs effectively, and often national goals do not coincide with the needs of the majority of people within the country. Even though national programs are usually designed to affect the largest numbers of people, the broad nature of the goals and objectives of such programs militate against their acceptance and

adoption by a majority of individuals. It is also very difficult to incorporate, an effective feedback mechanism of input and criticism from the people for whom the program is designed into such a national program.

Many of the existing political regimes of third world countries have goals far different from those of raising the living standard of their populace. By definition, modernization programs are intended to meet national (or international) goals and they directly and financially support the existing political regime. Many third world governments today are composed of civilian/military oligarchies and as Baran (1983:80) notes, "the economic and political order maintained by the ruling coalition of owning classes finds itself invariably at odds with all the urgent needs of the underdeveloped countries". Through foreign aid programs and incentives Western industrialized countries often provide financial support directly to the political group which governs the third world country and generally controls the productive use of the land and other resources. However surreptitiously this is done, the goal is to make an economic profit, often at the expense of the country, and a result is to increase the wealth disparity in the country. As Morehouse says (1979:389),

> 'Trickle-down' development policies (over the past 30 years) have been based on the rapid and indiscriminate import of capital-intensive technology from industrialized countries. While these policies have unquestionably generated economic growth, they have, if anything, aggravated rather then alleviated the equity crisis in many, perhaps most Third World countries.

The economist's unit of analysis, the nation-state, is a very broad unit which generally does not give one an accurate picture of the marginal groups like rural subsistence farmers or the urban poor who

normally comprise the majority of the population. In a country where statistics and census figures are very difficult to calculate, unreliable, and difficult to find, there is an inherent danger that one will misinterpret the true economic situation. When the nation-state is the unit of analysis one again encounters the disparity between national goals and policies and the short-term needs of the majority of the population.

The success of modernization programs is dependent upon a knowledge and understanding of local history, culture, ecology and social and economic relationships. All modernization programs must be made specific to the area of implementation and the goals and objectives must coincide with those of the target population if they are to be successful.

Modernization programs, as conceived and written by people from Western industrialized counties, are often not based upon an understanding of the sociological, anthropological or historical trajectories of the communities they impact. Similar to many historical colonial policies, national modernization programs often promote industrialization through the specialization of labor and the displacement of the subsistence farmer. The production of cash crops for export, grown on large landholdings, are encouraged instead of the production of basic food crops necessary to feed the populace. Small-scale farmers are often pushed off their land and relocated to urban suburbs of industrialized areas. This action often results in the development of a class of urban poor who have moved to industrial centers with the hope of finding employment. Chronic unemployment is often the result. The urban poor have an even lower standard of living than the rural poor. They also have much less chance for improvement. Many of the consequences of modernization programs are advantageous to Western

industrialized countries but are often detrimental to the majority of the people in the third world country. This situation is true even though the programs are sanctioned by third world governments and promoted by such international development organizations as the World Bank, and the International and Southeast Asian Development Banks.

Foreign Aid for Development

There is a basic discrepancy between the theoretical and practical roles which foreign aid plays. Ostensibly one of the major reasons why foreign aid is given is so that third world countries can develop. Yet development means a change in the situation of the people impacted, a progression towards a more technologically advanced condition. Foreign aid is, however, often given to support the current political regime and to maintain the economic, social and political structure of the country, thus retarding the country's overall development. There are numerous reasons why Western industrialized countries give foreign aid, but certainly the maintenance or dissolution of governments is one of the most important. Foreign aid is often couched only in economic terms, but as Morgenthau says, "the problem of foreign aid is insoluble if it is considered as a self-sufficient technical enterprise of a primarily economic nature. It is soluble only if it is considered an integral part of the political policies of the given country" (1964:363).

Development

The first step in "development" for third world countries, is for them to view development as a total process in which they control the importation of technology. Decisions on such importation should be made by the individual country and based on the application of such technology

to 1) contribute to satisfying basic needs of the majority of the population, 2) utilize local factors and conditions and generate employment, 3) not affect natural resources, the ecology and environment in a negative way, 4) promote self-reliance and reduce economic disparities and inequalities, 5) build on endogenous technical traditions, and 6) blend with cultural traditions on a local/regional/ and national scale (Galtung, 1979). As Wignaraja says (1979:342,345),

> For poor countries pursuing a self-reliant humanistic development strategy the main internal focus would be on the development of technology to suit the felt needs of the masses and one that would be consonant with their cultural values... This implies the elimination of 'dependency' relationships, irrespective of whether they are of a national or international character, development through a country's own effort, and recognition of the value of mutual assistance.

The economic dependency relationships of periphery and core must change, both between countries and within third world countries. A system of land redistribution must be effectively implemented and third world governments become responsive to the needs of the majority of people in their country, if there is to be anything more than very limited national development. The Western industrialized nations, particularly the USA, must curb its consumption of non-essential goods, the exploitation of land and resources on a worldwide basis in their search for raw materials, and acquiesce to the third world countries as they make their own decisions regarding the importation of technology and development programs. "Similarly, the international community should recognize that a hungry person is an angry person, and that the developing nations will no longer tolerate the exploitative ways of the industrial world. The industrialized countries should not assume that the patience so far shown by the Third World will continue indefinitely" (Forge in Morehouse 1979:365).

Development Programs

It may be possible to have successful small-scale development programs which affect marginal groups and help promote self-sufficiency without requiring the sweeping economic, political and social changes necessary for a successful national modernization program. Development programs, which seek on an individual or community basis to provide for adequate food, shelter, health, education or employment may have a positive effect if they are community-focused and implemented on a small scale and in direct collaboration, with national government approval, with the people to whom they are directed. The United Nations Food and Agricultural Organization (FAO) has recently sanctioned a philosophy "toward a new extension strategy - from promotion of innovations to participatory communication" with the objective of forging "an effective partnership between the farmers and the development agencies by creating conditions conducive for farmers to participate actively in development activities" (Wickramasinghe, 1982:15). Although for many years it has been recognized that participation of the recipients is critical to the adoption of innovation (Niehoff, 1969), development programs continue to generate information flow in one direction, vertically downward, and to force upon the recipients the "right" way of doing things. This type of development program is a direct result of the underlying core-periphery economic model and philosophy. "The farmer, as the recipient of information and innovations, is regarded as being on the periphery of a circle that has at its centre the various government agencies that develop and diffuse innovations" (Wickramasinghe, 1982:15). It would be very dangerous to ask recipients what they really thought of the development program, or to see how their goals might vary from those of

the national government or donor agency. Yet for the development program to result in the adoption of the proposed innovation there must be a two-way flow of information. Communication between the recipient and the donor must occur and the recipients' goals, interests, and needs must match those of the development program.

Chapter 4

COMMUNICATION MEDIA IN DEVELOPMENT

Mass Media

Many development programs rely upon some form of mass communication media to affect change. Too often, however, communication strategies have been considered as a means unto themselves, capable of affecting change without an acknowledgement that such strategies cannot be effective unless there are concomittant changes within the social, political and economic structures of a developing country. Since development programs are often directed towards marginal groups which are socially, politically, economically and (often) geographically isolated; communications media, particularly mass media, are often the cheapest and quickest way to reach such groups with ideas, information and training. As O'Sullivan-Ryan and Kaplun's (1981)) review of communication studies have shown, mass media have not always been an effective method of communicating. Mass media almost by definition involve one-way communication from the centre outwards to the periphery. Feedback is almost always limited or non-existent. What happens to the communication message, its impact on the "target" audience and their attitudes towards it, are often not taken into account.

Communication messages disseminated by mass media have been intimately tied to diffusion and persuasion theory. Those who have made such messages, have used the marketing approach to communications where persuasive communication techniques are necessary to "sell" the technological innovation. Many development programs which use mass media have adopted the marketing approach which is typical of vertical and one-

sided communication and which assumes that certain behaviors and habits can be changed by "spot" messages. Research (Chu and Schramm, 1979; Rogers, 1984) has shown that behavior is rarely changed by non-personal sources and that communication dialogue and exchange are essential for behavioral change. If development is defined as a process which is dependent upon the extent to which individuals are changed by participation in their socio-political and economic environment, then communication strategies must be designed to encourage such participation.

Development Communication

The development of communication strategies within a proposed development project, requires an analysis of the information that people within the target population need to receive and the means of transmitting it. A major problem is to identify who should make those decisions. If the content of the communication is decided by a relatively small group of people who determine what the target population needs and wants to know without any direct input from the target population, then at best the development effort will be limited or will not occur. At worst, the target population will be left feeling disillusioned and used any may be in worse condition than before.

Participatory Communication

Participatory communication is a term which has evolved from the concept of marginality, where communication strategies are utilized as instruments for social change (O'Sullivan-Ryan, 1981). The role of communication in human society was redefined at the 1976 UNESCO General Conference at Nairobi as:

> a process of social interaction through a balanced exchange of information and experience... The aim is to achieve a system of horizontal communication based upon an equitable distribution of resources and facilities enabling all persons to send as well as to receive messages. (UNESCO, 1976).

The logical extension of this concept, where communication media have been utilized to provide two-way communication, is known as community communications (Berrigan, 1979). The premise underlying the use of community communications is that the media are a means of expression of the members of the community rather than solely a mechanism for information transfer to the community. "Community media are adaptations of media for use by the community, for whatever purposes the community decides." (Berrigan, 1979:9).

Communication media have been used as a forum for Paulo Freire's concept of consciousness-raising and self-promotion among marginal groups (Freire, 1972). There have been several occasions when radio and video, have been used to stimulate consciousness-raising and politicization in communities in third world countries. They have also been utilized to try to establish upward vertical communication channels and horizontal communication among target populations, such as 1) the Tanzanian Year 16 Project in 1971 (Berrigan, 1979) and the Audio Cassette Listening Forum in Tanzania (ACLF [Stanley and Lundeen, 1979]), 2) the Movimento de Educacao de Base (MEB [Movement of Basic Education]) project in Brazil in 1960 (O'Sullivan-Ryan and Kaplun, 1981, 3) Kheda TV (Karnik, 1978) and Rajasthan, India (Academy for Educational Development, 1981), video in Gambia in 1977 (Jacobs, 1977), and 5) the Popular Promotion Movement in Honduras (White, 1977). In most of these examples, media were provided

for the expression of the community, not as an integral part to a development program. The use of media as community communications has met with variable success. The Tanzanian projects were particularly successful because they were able to involve the target population and let them define their situation and needs and determine their ability to change the situation. The concept of community communications has generally not been successful within third world countries, primarily because such communication strategies are specifically designed for information exchange among marginal groups. There must be a tacit acceptance by those who hold the political power within a country that such marginal groups, which have been traditionally excluded from participating in social, political and economic decisions, are capable of managing change in their own environment. With several notable exceptions, such as the ACLF in Tanzania where the aims of the project were integrated with a national policy of decentralization and self-reliance, the concept of community communication is in direct opposition to the policies of the ruling elite who are concerned with social, economic and political stability. Consciousness-raising activities are likely to lead to frustration, civil unrest and government reprisals. As O'Sullivan and Kaplun (1981:88) concluded in their analysis of twenty-two participatory communication projects, "sooner or later they must face the rigidities of socio-political constraints."

This situation raises the question as to whether participatory communication should be considered as a viable tool for use in development programs in third world countries, especially those which are not yet prepared to instigate social, political, or economic change from within. Perhaps participatory communication utilizing mass media on a national scale is not possible given such constraints, but on a micro

level it is possible if such participatory communication does not directly challenge the existing *status quo* or alienate the existing hierarchical structures.

There is clearly an important need to inform and train people from marginal groups, and provide an opportunity for community exchange within and among such groups. Development communication may provide one mechanism whereby the efforts and ideas of people from marginal groups are actively sought and meaningfully integrated into development programs (Crawford, 1974). This kind of integration is occurring in projects in many countries, including video use in 1) Indonesia (Stuart, 1980), 2) Sri Lanka to improve the government's family planning program (Berrigan, 1979), 3) Guatemala to promote soya cultivation (ibid.), 4) the Philippines in conjunction with family planning (ibid.), and 5) Peru where Centro de Produccion Audiovisual para la Capacitacion (CEPAC [Audiovisual Production Center]) for CENCIRA, the National Center of Training and Investigation for the Agrarian Reform System, is training rural subsistence farmers in production technology and co-operative management (Balit, 1977, Berrigan, 1979). In these projects video or radio has been used to meet certain defined goals in conjunction with a project. Media have not been used as a stimulus directly to promote social, economic or political change, but by using the media as a training tool and a mechanism for vertical and horizontal information exchange, it is providing the groundwork for such change to occur. In CEPAC, the target population can request specific video materials and communicate its perceived needs. Development communication should be a cyclical process into which inputs can be made at any point and be questioned or responded to at any other point (Bordenave, 1976). A model

delineating the mechanism for such inputs thus forms a valuable tool for project planning for international technical assistance work.

Chapter 5

THE STUDY AREA AND REGION

Before any development program can be implemented, it is important to establish background knowledge of 1) the geography of the country and more particularly of the targeted study area, 2) the social, political and economic structures which affect the country and the targeted population, and 3) an historical perspective of the country and the region. Although it is not possible within the scope of this research study to fully examine each of the above aspects, a brief description of the major points follows.

Physical Environment

Geography

The social, economic and political development of Honduras have been greatly affected by the rugged topography and the isolation which this has imposed on most of the country. Honduras is located in the middle of the Central American isthmus with the Caribbean Sea to the north, Guatemala to the west, El Salvador to the south and Nicaragua to the east (see Figure 1). The southern region of Honduras extends to Tigre Island in the Gulf of Fonseca on the Pacific Ocean. Honduras extends approximately 650 kilometers from east to west along the Caribbean coast and only 310 kilometers from north to south. Unlike other Central American countries who have a single range of mountains interspersed with active volcanoes which runs parallel to the Pacific, Honduras has intersecting mountain ranges which cover nearly two-thirds of the country and no active volcanoes. The mountains are divided roughly into four areas: the southwest highlands along the frontier with El Salvador

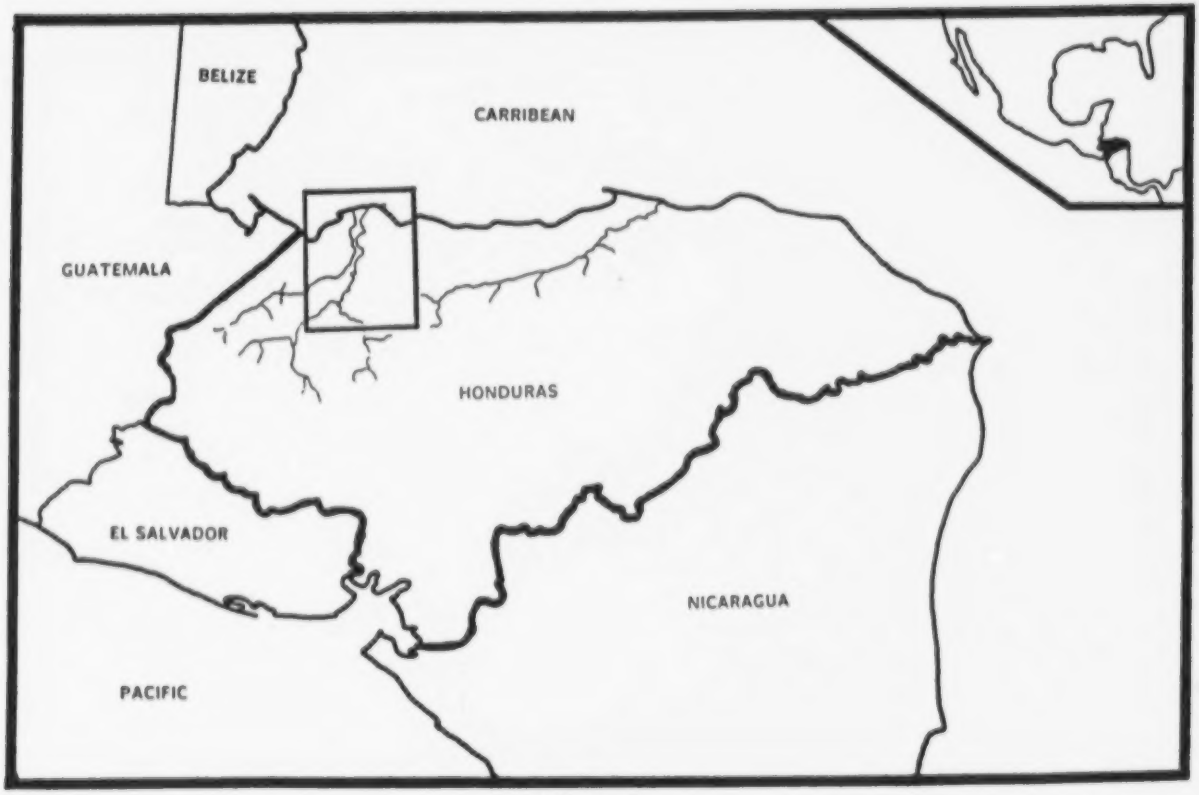


Figure 1
Map of Honduras
The box indicates the study area enlarged in Figure 2.
(From Dean, n.d.)

are the highest (Montana de Celaque at 2,850 meters) and most extensive; the lower central highlands (1500-2100 meters); the north-central highlands whose ranges intersect the northern coast of Honduras diagonally along a southwest-northeast axis; and the western Sierra Espiritu Santo, Cordillera del Merendon and Sierra de Omoa which divide Honduras and Guatemala. The mountain chain of Merendon, a part of the Sierras, divides the valleys of the Chamelecon and Motagua rivers and terminates abruptly on the Caribbean at Omoa (Ritter, 1855) much like the Cordillera of Nombre de Dios which rises to 2,435 meters, 20 kilometers from the sea at La Ceiba. Between the mountain ranges are inland river valleys, highland basins and along the coast, coastal plains and alluvial river valleys.

Three Geographical Regions

Honduras can be divided into three main regions according to geography and socioeconomic rank: 1) eastern region, the least populated, least developed and most isolated, comprising over a third of total land area with few roads or major population centers; 2) western region, departments contiguous to El Salvador and Guatemala traditionally the southern limits of the pre-Columbian Quiche-Maya civilization; and 3) central and North Coast region, the "corridor of development" (Morris, 1984). This corridor extends from the Caribbean coast south through San Pedro Sula, following a series of interconnected river valleys and highland basins through Comayagua, past the capital of Tegucigalpa and ends in the Gulf of Fonseca. This is the region which has the most industry and urban populations; which receives the largest amount of public investment and international development support and also contains nearly three-quarters of the nation's economically active population.

The geography of Honduras has impeded economic development, the creation of an infrastructure, and a sense of national identity and political integration. It was not until 1970 that the first all-weather highway between the two major cities in Honduras, San Pedro Sula and the capital of Tegucigalpa, was completed. Tegucigalpa remains one of two capitals in the world which is not serviced by rail (MacCameron, 1983). This natural isolation created by the geography has been compounded by the lack of passable roads. The only paved highway from Guatemala into Honduras is poorly maintained, yet this is the only passable road to the west. Roads south into El Salvador remain in poor condition following their lack of use during the "Soccer War" (1969-1980), and the subsequent guerilla activities on the Salvadoran side.

Climate

The climate in the humid lowlands of the north coast is tropical, with a precipitation of over 3,000 millimeters/year. The wet season officially occurs between May and October, however, in this area it rains throughout the year and the humidity remains high. Temperatures average around 26 degrees centigrade year round.

Agricultural Land

The soils of Honduras are relatively infertile and lack the volcanic ash found in the surrounding countries. Approximately 60 percent of the country's surface slopes at more than 40 percent, which largely limits land use for agricultural purposes (MacCameron, 1983). Only 30 to 33 percent is arable land and it is located in river valleys, on the flat portions of the intermontane basins and along the coasts (Morris, 1984). Thus, although the population density is very low 33.68 people per

square kilometer in 1980, and has remained so since pre-Colombian times, the amount of arable land is relatively scarce.

The broad alluvial plain cut by the Ulua and Chamelecon rivers contains good arable land which used to be densely wooded with forests of cedar, mahogany, ceiba, India-rubber and other large trees (Ritter, 1855). It is now consumed by large plantations of bananas and sugar cane and by increasing areas of cattle pasture. The edges of this plain, the swamplands below and the mountains above have been left to be cultivated by subsistence farmers such as the people from the study communities.

Economic, Political, Social, and Religious Structures

Economic and Political

Agriculture is the basis of the Honduran economy with nearly 70 percent of the labor force engaged in primary production, subsistence farming, with a small percentage employed in commercial agriculture. Nevertheless, more than three-quarters of all Honduran export income is derived from commercial-agribusiness operations and 25-28 percent from banana sales (Morris, 1974). Primary crops, including the banana industry, is susceptible to disease and hurricanes. Hurricane Fifi, which struck the north coast in 1974, greatly affected the nation's export base and devastated many areas of the north coast. Credit shortages, bad weather, the decision on the part of large landowners to raise cattle and use large tracts of land as pasture instead of growing food crops, and the low production and productivity of subsistence farming has contributed to declines in harvests of basic grains. These food crops are becoming increasingly scarce and more expensive.

Possession of the land is important to the political and economic elites to maintain their export base, and to the rural masses for

survival. Since the *hacienda* days, the landed elite have controlled a political and economic system in which the rural subsistence farmer has barely participated. "A prominent characteristic of the Honduran class structure is the extent to which the lower classes have been only marginally incorporated into national life" (Morris, 1974:30). The majority of subsistence farms are under two hectares in size and comprise 95 percent of all units, yet they occupy less than half of the agricultural land surveyed by a national census (Direccion General de Estadistica y Censos, 1978). Subsistence farmers have traditionally cleared forest to plant maize and beans. They used the land until the land became unproductive or until the tract was confiscated by a large landowner. Many subsistence farmers today cultivate precipitous slopes and marginal land which is the only land left to them. Although there have been various agrarian reforms enacted, after two decades of official commitment to more equal land distribution only nine percent of all land holdings surveyed in 1974 have been affected by agrarian reforms (Morris, 1984).

Population Statistics

The population of Honduras in 1980 was 3.69 million with an annual growth rate of 3.6 percent (U.S. Department of State, 1982). In 1974, the illiteracy rate was 43.1 percent (Wilkie, 1982). In 1961, 24.9 percent of the households had piped water (outside), 14.6 percent had electricity and 19.8 percent toilets (Wilkie, 1976). Honduras is the poorest of the five Central American states with an annual per capita income of $280.00 (Leonard, 1985). This figure is disproportionately high for the majority of the popualtion, since it is skewed by the few large, wealthy landowners and rich merchants.

Four-fifths of all Hondurans could be considered to live in poverty. An agricultural assessment survey in 1978 estimated that 64 percent of the rural population live on the edge of malnutrition, "those for whom relatively minor changes in income, food prices, health status, family size, or environment conditions create significant hardship", and that these people were unable to purchase or acquire minimum dietary needs (CONSUPLANE, 1976:68). Ninety percent of rural Honduran children under five years are caloric deficient (Morris, 1984). In 1967-68, a survey found that 80 percent of the population received only 32 percent of the nation's income, with average annual income level at fifty-four dollars per person (*Direccion General de Estadistica y Censos*, 1970.) Almost three-fifths of the economically active population were unemployed or partially employed in 1980 (Morris, 1984). Access to resources and services varies dramatically between urban and rural areas; the rural population in 1980 comprised 54.2 percent of the total population (ibid.).

Cultural Background

The society and culture of Honduras are primarily derived from its Hispanic heritage. Mestizos, people who have a mixture of Spanish and Indian blood, comprise ninety percent of the population of Honduras (Morris, 1974). The remaining 10 percent are racially distributed among Indian groups, a small black population along the north coast, and Caucasians. The study villages were comprised of mestizos.

Religion

The Catholic church has not had a significant political or social impact in Honduras and has never allied itself with political or

economic elites. The Catholic church has been involved in activities to raise social consciousness among the general population including the establishment of saving and loan cooperatives in association with the Agency for International Development (AID). They have also worked with the Jicaques and other Indian groups and have provided small-scale development programs to rural villages. The church started a Radio School in El Progreso on the north coast which was patterned after *Radio Sutatenza* in Colombia; the main objective was increased literacy. The school was supported by a government subsidy in 1963, but this was withdrawn as the school turned into a forum for village-action programs and *Radio Progreso* provided a means of expression for rural subsistence farmer groups (Morris, 1984). A coalition of subsistence farmers, church leaders and urban, middle-class activists became the core of new political forces through the National Peasant Union (UNC) and the Christian Democratic Party (PDCH) during the 1960s and 1970s. With the advocation of land reform, and the branding of *Radio Progreso* as a communist institution, *Radio Progreso* ceased its voice and the church sought to depoliticize itself, disassociating itself from the forefront of community activism after two priests died. (The President of the SSLP group in Jutosa learned to read and write through the literacy program provided by *Radio Progreso*). Although some of the priests have been active in the Latin American liberation theology movement, the church as an entity has maintained a low profile.

The non-Catholic evangelical churches are increasing their membership, perhaps as a result of economic disillusionment among the rural people. Their emphasis is on the hereafter and patience with life as it is now, not social change.

Historical Perspective

Pre-Conquest

Cristobal Colon discovered Honduras in 1502 on his fourth voyage to the New World and claimed it as part of the Spanish empire. Prior to this time, we know that there were numerous Indian groups living in Honduras among them the Jicaques, Miskitos, Payas, Lencas, Sumas, Pipiles and the Chorti and Ulua Maya. The Ulua valley and the Valley of Comayagua seem to have been the highest centers of culture in the region and are believed to have carried on extensive trade by sea with the Yucatecan Maya. Copan, a large ceremonial Mayan site, although long abandoned at this time, was west and south of the Ulua Valley close to the Guatemalan border and reflected the brillance of the Maya in Classic times. Archeological evidence suggests that the Maya extended east of the Ulua valley to Trujillo on the north coast (Stone, 1943). Unfortunately since little archeological work has been undertaken in Honduras, and no descriptive records have been found prior to the colonial epoch, what Honduras was like in pre-Colombian times and who exactly inhabited what region is, with some exceptions, largely open to conjecture.

The North Coast has, since colonial times been the most accessible part of Honduras and consequently has received the most influence and intervention from other countries. This accessibility has been a two-edge sword from colonial times to the modern era.

Spanish Conquest

Twenty years after discovery, the Spanish arrived on the north coast and proceeded inland up the river valleys to Olanchito and Yoro on

the east and to the west up the Valley of Naco, beyond San Pedro Sula and Choloma. By 1524, four of the conquistadores laid claim to Honduras, whose boundaries were defined primarily by the Ulua valley and eastwards along the northern coast. Over the next two decades their fight to attain political control seriously retarded the development and colonization of Honduras (Chamberlain, 1953). The Spaniards found many well-established pre-Colombian urban communities of considerable size, particulary in the Valleys of Comayagua, Naco and the Ulua. Jutosa and Choloma are sites of pre-Colombian communities. The Indians initially accepted the early Spanish incursions into their territory but fought to preserve their liberties when Spanish colonization threatened to become permanent (Chamberlain, 1953).

When Alvarado captured Cicumba, the spearhead of Indian resistance in the Ulua Valley, he cleared the way for further colonization and the system of *repartimientos* and *encomiendas*. In 1536 Pedro de Alvarado founded the town of San Pedro (Sula) and assigned its surrounding villages in a *repartimiento* to the Spanish citizens who had accompanied him (Chamberlain, 1953). By 1544 the *encomienda* or *hacienda* system was well ensconced and three types of *encomiendas* were established 1) agricultural in the mountain valleys with basic grains, cotton, tobacco and sugar cane, 2) mining for gold and silver in the central zone, and 3) cattle ranches primarily in the western part of the country (Mejia, 1985). With this removal of the agricultural land from the Indian population, the latter were obliged to move up into the mountains to continue farming. The Indians were known to have been extracting gold and silver before the Conquest. The Spanish were exploiting precious metals by 1534 in the river valleys behind Trujillo. Rich silver lodes

were discovered close to the town of Comayagua in central Honduras by Montejo, and colonists were attracted to Honduras to mine its gold and silver. The *encomienda* system thus became very important to the colonialists because it insured a continuous and easily accessible labor force.

Spanish Colonialists

The *encomienda* was conferred by the King of Spain upon a Spanish colonialist, owner of the *hacienda*, or *hacendado* who received the right to appropriate the "services" or manual labor, of the Indians, obliging them to work on the *hacienda* in exchange for protection and religious education. The *repartimientos* institutionalized the forced labor of the Indians by the conquering leader in a region dividing the Indian population among the new colonialists and forcing the Indians to 1) work for the colonialists, 2) buy a certain quantity of goods in exchange for manual labor, and/or 3) sell grain, birds or domestic animals at a price fixed by the *hacendado.* In addition, the system of *jueces de milpa* was another institution created by the Spanish as a means of obtaining a basic food supply. The *hacendados* sent men into the Indian villages and forced the Indians to give maize, wheat or cacao to the *hacendado* (Mejia, 1985). These Spanish institutions insured that the Indians who did not flee to more isolated parts of the country, were reduced to the status of slaves.

To assure a state of economic dependency between the *hacendeos* and Spain, Spanish merchants brought manufactured goods from Spain which the *hacendados* were obliged to buy, thus impeding the development of any local industry. Spain dictated which crops the *hacendados* could grow, so they would not compete with Spain on the world market. The mining

haciendas extracted gold, silver and copper for export to Spain until the eighteenth century when the mines were no longer efficient. Between 1492 and 1803, 5,706 million *pesos* from the mines of America were expropriated by Spain (Mejia, 1985).

Until 1786, Honduras was part of the Captain-Generalcy of Guatemala and located on the fringes of the Spanish Empire. In that year, Spain created the *Intendancia de Comayagua* which marked the beginning of a rivalry between Comayagua and Tegucigalpa (Morris, 1984). Comayagua had been the seat of colonial authority and then the republican capital. The cattle *hacendados* attained pre-eminence with the decline of the silver industry and the mining *haciendas*. In the nineteenth century the cattle *hacendados* were influential in the economic, and hence political policies of Honduras.

Independence

The five colonies of Central America declared their independence in 1821 but were unable to consolidate a confederated system of government. In 1839, Honduras declared itself a separate country. Central America attempted to reunify numerous times but without success.

Foreign Investment

The conflict between Comayagua and Tegucigalpa was a reflection of the lack of a strong and cohesive ruling class in Honduras and a time of political chaos. Tegucigalpa was first settled near the end of the sixteenth century when silver was discovered close by. Silver production declined in the 1700s until 1880 when silver mining was revived and Tegucigalpa became the political capital (Morris, 1984). Under the presidency of Marco Soto (1876-1883) new economic policies were decreed to obtain technology and capital and to stimulate both domestic and

foreign investment in Honduras. Foreign investors, both in mining and banana-plantation development, were granted generous tax exemptions and favorable land concessions with the result that international economic interests dominated production within the Honduran export sector. Prior to the nineteenth century, the Honduran economy was relatively self-sufficient, although exploited by the Spanish mercantile system. It remained relatively isolated from contact with world markets. It was through foreign-controlled enterprises almost exclusively that Honduras first became integrated into the world market.

"In 1880, the New York and Honduras Rosario Mining Company was organized and obtained its first twenty-year concession from the government" (Morris, 1984:4). In 1887-1888 more than half of the Honduran exports were minerals and Rosario's share of this market was almost 90 percent (Meza and Lopez, 1973 In Morris p. 131). Nevertheless by the end of the nineteenth century silver prices had fallen on the world market and the mining industry was declining. This coincided with the ascendancy of the banana industry.

In the early 1900's the north coast of Honduras became the center of agribusiness and industrial activity. North Americans were given numerous concessions to establish plantations along the north coast. By 1930, Honduras became the world's leading banana exporter. Cultivation of bananas before this time had been predominately by Hondurans, but after this time production was dominated by U.S. companies. The Vaccaro Fruit Company consolidated in 1926 into the Standard Fruit and Steamship Company after acquiring additional lands in exchange for the construction of railroads. The multi-national United Fruit Company (now United Brands) absorbed the Cuyamel Fruit Company in 1929 and counted among its

subsidiaries the Trujillo Railroad Company and Tela Railroad Company, together with docks and shipping lines. "The companies owned local electric facilities, ice plants, communications systems, sugar mills, commissaries, and soap factories, as well as the largest, most important bank in the country." (Morris, 1984).

A very complex, symbiotic relationship evolved between the Honduran government, United States private interests and the foreign policy of the USA towards Honduras (MacCameron, 1983). In 1924, President Coolidge sent a personal representative, Sumner Welles, to Honduras to mediate a minor civil war, Welles reported:

> (I believe) that the disasters which have lately overwhelmed the Republic of Honduras can in large measure be attributed to the direct intervention of certain important American interests located in that Republic. . . when the forces of the revolution were being paid and armed with American money and American arms and ammunition given by American business interests and when the property of these same interests was protected against the forces of the Liberal party by the warships. . . of the United States government. (Wright, 1960:222)

The north coast of Honduras with its hot, humid climate and low swampy delta did not have a high potential for agricultural development. The climate and conditions, however, proved very favorable for growing bananas. The banana companies thus created thousands of jobs and an economic stimulus to an otherwise unproductive region. The fruit companies had brought their own infrastructure with them and had helped to provide services and public works to surrounding cities, including San Pedro Sula. The fruit companies imported labor from Jamaica, the Cayman Islands and the Lesser Antilles as well as employing Honduran migrants. These were new sources of revenue but on the whole, development did not occur outside the north coast. The development that did occur was

localized and primarily benefited the export sectors. "Honduras receives only 12 cents of every dollar of banana export revenues." (Leonard, 1985). Unfortunately within the expanding capitalist world economy, foreign investors were more able to take advantage of new investment opportunities than Hondurans. As the political and economic power of the fruit companies expanded, the governing elites of Honduras competed for the wealth and political resources offered by the large foreign-owned companies.

The 1975 scandal, in which the United Brands multinational corporation were said to have bribed high government officials in an attempt to avoid export taxes and a cancellation of concessions to the corporation, led to the deposition of Gen. Lopez Arellano and a revision of national policy towards foreign-owned companies (Morris, 1984). That same year, the national Honduran Banana Corporation was created to oversee the national banana business. The next year the docks and parts of the company's railroad system were nationalized.

There is no doubt that private investors from the USA and multinational corporations have had a major controlling effect on the economy and politics of Honduras since its independence, but this control is not restricted to the fruit companies, nor to the past.

The Hamburger Connection

Over the last two decades the use of land for pasture has increased from 41.9 percent of the total land to 61.1 percent (DeWalt and Pelto, 1985). From the time of Conquest, cattle have been raised. There has been a significant increase in livestock production recently, however, that has produced precipitous declines in fallow land and forest. The end result of this increased use is a displacement of the subsistence

farmer who used to rent this land from the large landowner and a decrease in overall production of basic grains necessary to feed the people of Honduras. This shift in land use has occurred for the following reasons: 1) an attempt on the part of landowners to prove that their land is in use and thus not subject to agrarian reform laws, 2) the availability of low cost credit provided by the World Bank, where 71.3 percent of the total budget was allocated to the livestock sector as opposed to 28.7 percent for crop development, irrigation, fisheries, forestry and integrated rural development (World Bank 1975: 80-1), 3) the low and unstable prices of traditional export crops on the world market, 4) the low labor costs and low risk associated with raising cattle, 5) the open market policy for beef established by the United States in the 1960s which favors the importation of Central American beef (Parsons, 1976), and 6) the establishment of meat packing plants in Honduras owned or financed by U.S. capital (DeWalt and Pelto, 1985).

The production of beef in Honduras has increased 231 percent from 1959-1963, however, per capita meat consumption has declined from 1959-1979 by 20 percent. During this same period the export of beef, primarily to the USA, has increased 505 percent. This increased production of beef has not gone to the 58 percent of Honduran children under the age of five who suffer from identifiable malnutrition (INCAP, 1969).

DeWalt and Pelto describe the implications of this economic relationship between Honduras and the USA as follows.

> Honduras has become a large cattle ranch for the developed countries, principally the United States. It has done so at the expense of grain production. This process creates greater unemployment, a lower standard of living for a part of the population, and a role as the purveyor of cheap beef to people who can afford to eat high on the food chain (and whose

> pets can eat there too). If the goal were to create a sustainable agricultural system that would have the potential to continue to feed the nation's population, then those who control such decisions in Honduras have made the wrong choice (1985:183).

It is obvious that U.S. intervention in the national affairs of Honduras has been continuous throughout Honduras' history. As MacCameron says,

> The exact nature and extent of Untied States influence in Honduras is difficult to determine...it would appear that United States influence, during the period of this study (1950's), was applied both in a direct and a subtle and diffused manner, depending upon particular U.S. economic and national security objectives and conditions indigenous to Honduras (1983:90).

Military Aid

USA military aid had significant effects upon the Honduran military who took control of the government in a military coup in 1956 and controlled the government until the elections of 1982.

> Between 1950 and 1969, 391 officers and 689 enlisted men were trained through the U.S. Military Assistance Program. As a result, skill levels within the army increased appreciably. Moreover, mobile troop concentrations replaced the traditional rural-based militia-armies. The creation of five operative field battalions in effect constituted the country's first national army." (Ropp, 1974:510-513).

In March of 1986, $20,000,000.00 were supplied to the Honduran government in the form of arms from the USA, in an effort to support U.S. international policy in Central America.

It is still difficult to determine the exact nature and extent of U.S. involvement in Honduras. It is well-known that private U.S. investors as well as the U.S. government are financing the *Contras*, a counterinsurgent guerrilla group politically backed by the U.S. government. The *Contras* are based in Honduras and attack across Honduran borders into Nicaragua. This action is having severe consequences in

Honduras and in its relations with the other Central American countries.

National Development Plan

The National Development Plan of 1974 outlines Honduras' development strategy, which "assumes the acquisition of new technologies, necessary capital goods, and more infrastructure development - all requiring external resources in the form of direct imports or financing" (Morris, 1974:103). Honduras must import essential items to the agribusiness sector, and most of the development projects necessitate the import of machinery, raw materials, fuels, chemical products, and production systems. The ability of Honduras to import these items is dependent upon the productivity of its export sector which is increasingly suffering from worldwide recession and the lower prices for exported bananas, coffee, meat, cotton, wood and minerals.

As the political situation in Central America deteriorates and the involvement of the USA in the economic and political policies of Honduras increases, the potential for war increases. If the monies which are being spent on military aid and weaponry in Central America, could be converted to social and economic development programs which included true agrarian reform, a reduction in the great disparity of wealth and supplied the basic necessities for a standard of living adequate for the health and well-being of the people of those countries, then the discontent of the masses, upon which the communists base their activities, would, in large part, disappear. If the 100 million dollars which Congress may appropriate to the *Contras* in spring 1986 were to be spent in Honduras not for armaments but for social and economic improvements, the beneficial impact could be significant among Honduras' 3.7 million population.

Chapter 6

BACKGROUND PARAMETERS OF THE SSLP

In addition to the need for a general understanding of the background to the country in which a development project or research study is being undertaken (Chapter 5), a more detailed understanding of conditions within the target area is also necessary.

Before my study could be undertaken, I felt that it was necessary to understand 1) the ecology and geography of the study area, 2) the history of the villages in which the women live, 3) the social, religious, political and economic structures which affect the SSLP women, their cooperative groups, and the economic exchange relationships within their villages, 4) previous efforts at modernization or development programs in the villages and their success or failure, and 5) the history of the Small-Scale Livestock Project (SSLP) and a working knowledge of their operation, methods and goals. Only with this understanding, would it be possible for me to contribute something to the project, and more importantly, to the rural subsistence women (RSW) in the SSLP groups.

Geography

The four villages which formed the basis for this study, San Jose de los Laureles (Laureles), La Nueva Jutosa (Jutosa), Los Caraos (Caraos) and Los Jardines del Norte (Jardines) are located within the Department of Cortes (Cortes) in the northwest region of Honduras about 50 kilometers from the Caribbean, close to the Puerto Cortes to San Pedro Sula highway (see Figure 2). Although the villages are only 15 kilometers from San Pedro Sula they are considered rural areas and the population of

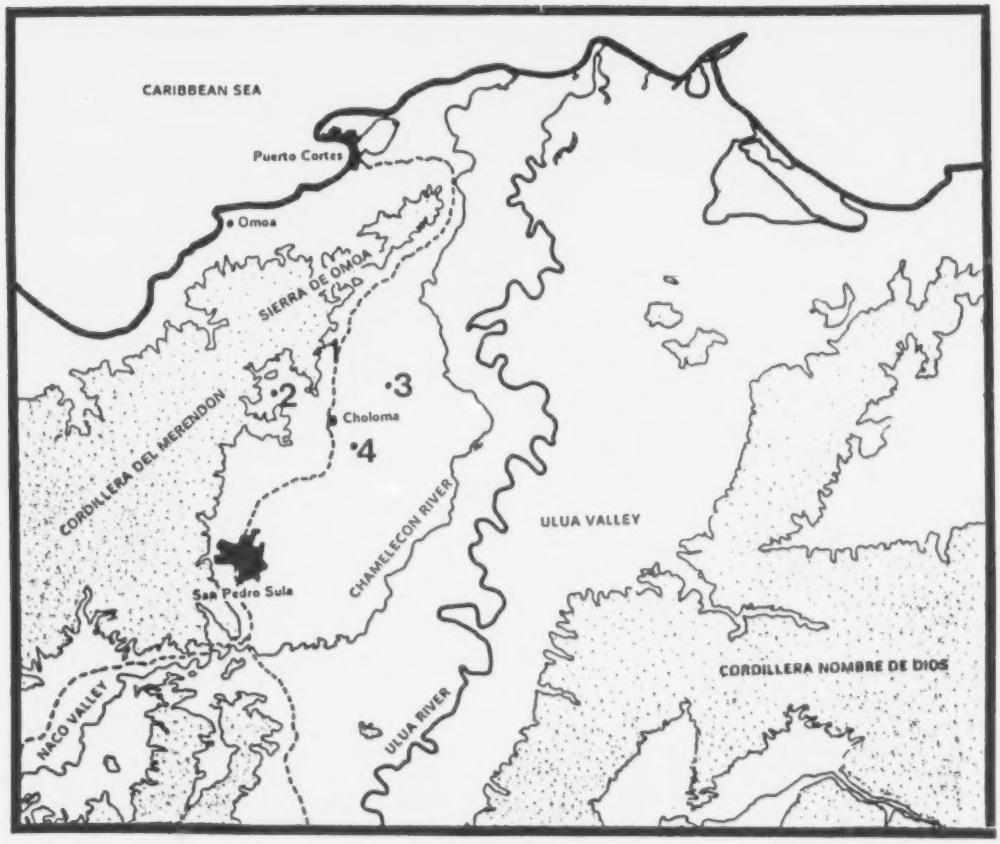


Figure 2
Map of study area showing the locations of the study villages.
1 = San Jose de los Laureles, 2 = La Nueva Jutosa,
3 = Los Caraos, 4 = Los Jardines del Norte.
---- = Highway, —— = Rivers,
Shaded area corresponds to land over 330 meters.

the largest, Jutosa, does not exceed 1400 people. The other villages contain less than 500 people in each. From the study area east extends the alluvial valleys of the Chamelecon and Ulua rivers which are bounded on three sides by mountains and on the fourth by the Caribbean. A large part of this low-lying plain is swampland with numerous lagoons. Caraos is located on the flat plain to the west of the River Chamelecon, Jardines is situated on rolling land just above the plain and Laureles and Jutosa are further west in the foothills of the Cordillera del Merendon.

The central market town for all four villages is Choloma which is located on the road between San Pedro Sula and Puerto Cortes. The metropolis of San Pedro Sula is the second largest, but busiest, city in Honduras and is located on the Ulua River valley 60 kilometers from the Caribbean port of Puerto Cortes. San Pedro Sula is located 15 kilometers south of Choloma and the study area.

Social, Political and Economic Structures

Social and Economic Structures

All of the women in the SSLP groups are rural subsistence women (RSW) and as such are mostly excluded from participating in the processes which affect the social and economic structures in their villages. The majority of their husbands have a *milpa* (corn field) and/or a *frijolar* (bean plot) in the surrounding mountains. These people produce enough corn and beans together wih a small quantity of rice sufficient for their own subsistence. They sell any surplus to the local store where they have received credit to buy needed goods throughout the year against the sale of their corn, beans, or small cash crop, such as coffee or cacao.

Occasionally cash crops such as pineapples, coffee, tomatoes, or yucca are grown and sold at the local market town. With no transport, market monopolies, and low prices received by the farmer for such cash crops, there is little incentive to grow them. Most subsistence households have fruit trees and grow a limited amount of vegetables and herbs for household consumption. Any surplus is almost always sold within the village, although a few women take the vegetables or fruit to Choloma or to San Pedro Sula to sell. Since the women lack their own transport and must carry their produce on the bus, the amount that they can sell at one time is limited.

Generally a RSW will keep at least a few domestic animals, primarily chickens and ducks whose eggs the family eats and occasionally sells to neighbors. Sometimes she will keep pigs and fatten them to sell. Rarely are these animals consumed by the household. Animals are generally sold when there is an economic emergency. Most subsistence families do not have any transport or access to transport. Due to this lack of transport, pigs are generally sold at much below the market price to a local middleman who then transports the pigs to market. "Lack of adequate marketing opportunities probably reduces the farmer's income from pigs by as much as 50 percent and in some cases more." (OEF, 1983:12). Although the woman is responsible for the care of the domestic animals, the man sells the larger animals, pigs or cows, and gains the money from the sale.

Most of the rural subsistence families participate in only a limited way, in the larger economic market outside of their immediate village. The central market town of Choloma does, however, provide a market for some of their products and is the source for acquisition of household necessities unattainable in the village.

Political

For the second time in Honduras' history, in November, 1985 there were free elections for the President. All people over the age of 18 were permitted to vote. Many people exercised their right to vote, particularly in light of the fact that the radio announced that there would be a 50 Lempira (25 U.S. Dollar) fine for each eligible person who did not vote. A person's identity card was marked in a certain way when he/she voted. In any case, this participation in the political process is a step in the development process of Honduras.

Pig-Raising in Honduras

The Swine Industry

The swine industry in Honduras is important to the national economy for several reasons: 1) pork is a high quality protein food and the demand for pork among Honduran consumers is increasing, 2) swine production can be an important potential outlet for domestically-produced grains, particularly where the marketing of such grains is difficult, 3) there is a potential export market if processed pork can be exported successfully, 4) if swine production can be increased and pork products processed for domestic consumption, pork products would not need to be imported, and 5) pork production and processing would provide a source for employment (AID, 1982).

Traditional Pig-Raising

The traditional method for raising pigs is to have one or two pigs tethered near the house or to allow the pig to roam freely. The pig scavenges on available household scraps or forages on roots, cut grasses

or other available plants or foodstuffs. The RSW would not have the money available to feed the pig concentrate or other supplemental purchased feed. Due to the lack of sufficient protein and inadequate nutrition, pig production and productivity is low. The *criollo* pig (brought with the Spaniards at the time of conquest) has less genetic potential than European and North American breeds but is capable of surviving under subsistence farm living. The *criollo* produces a small carcass with a high percentage of fat, and is slow-growing. Due to its reduced size, quality and potential diseases, these pigs are often unacceptable to processors (AID, 1982).

The Small-Scale Livestock for Rural Farming Women Project

History

The ongoing OEF/AID 522-0251 Project, Small-Scale Livestock for Rural Farming Women Project (SSLP) in Honduras, Central America is introducing and implementing a new holistic approach to subsistence level pig production among four groups of RSW in the Department of Cortes. The SSLP is a three year project, funded by the Agency for International Development. It is specifically designed to help rural farming women organize themselves into cohesive groups and it provides them with sufficient technical and administrative knowledge to successfully manage the production and marketing of pure bred pigs. The SSLP is introducing not only a new method of keeping pigs in pig farms, but it is also introducing new imported varieties of pigs: Duroc, Hampshire, Landrace and Yorkshire crosses to the cooperative groups.

In the Country Development Strategy Statement (CDSS) for FY 1983, the AID Mission defined the main goal in AID activities in Honduras as improving the productivity of the agricultural sector (AID, 1983). With

regard to small producers, the CDSS stated that the small farmers' ability to increase productivity is dependent upon access to land, technological advice and inputs, credit, transportation and the market (ibid.). The U.S. Presidential Agricultural Task Force, which visited Honduras in October, 1982, stated that the problems for commercial livestock producers are primarily market constraints including a single market outlet (the United States) and periodically depressed world prices (Wheeler et al., 1982). In "Economic Development of the Swine Industry in Honduras; Problems and Recommended Solutions", an AID Report, it was recommended in 1982 that a commercial farrowing unit and finishing units be established with technical support and training for rural farmers. Moreover, it specifically referred to male rural farmers (AID, 1982). As a result of such recommendations and an analysis of the agricultural situation in Honduras, AID Mission has implemented a major livestock project, *Fondo Ganadero*, and the SSLP. The latter is complementary to and compatible with the former, but it is specifically designed for rural subsistence farm woman.

Since the SSLP Project Director and the majority of the staff are Honduran middle class women, the SSLP is operating at two levels for women in development. At an administrative level, it is providing an opportunity for national women to oversee, supervise and administrate a development project. At the same time, the project is giving rural subsistence women an opportunity to produce and market pigs as a commercial enterprise, thus giving them the experience and opportunity to participate in agro-business activities and to improve their economic situation and status at the same time. The US Agency for International Development Office in Honduras has recognized the need to encourage women to participate in employment sectors such as agro-business and to become

integrated into such sectors and into the economic market (OEF, 1983). The SSLP is one attempt to provide a model for other similar small scale projects.

The SSLP hopes to develop a reserve of RSW who have technical, administrative and marketing skills and are actively participating in the economic market to provide additional income and food to their families. It is hoped that at the end of three years, the SSLP groups will be able to operate economically profitable pig farms and that they will be able to continue without additional financial aid. Rural subsistence women have in the past, been overlooked in most development programs in third world countries, and Honduras is no exception. However, as was stated at the International Conference on Women and Food, "If basic food/nutrition needs are to be met, developing nations must take into account the historic role of women in their food production and marketing systems and involve them as equal partners in the development process." (Quoted in OEF, 1983:14).

SSLP Staff

At the time of this study, the OEF staff was comprised of eight people, including the Project Director and office administrator. Two *entrenadores* were responsible for assisting, supervising and training the four groups of women in the Department of Cortes, a third *entrenadora* was hired during this study but did not work in the study area. Two Peace Corps volunteers each of whom lived in one of the SSLP villages, one technical advisor who was hired in August 1985, and two *promotores* from the counterpart institution, *Horizontes de Amistad* composed the rest of the field staff.

The SSLP Villages

All of the villages are mostly comprised of rural subsistence farmers. Jutosa has a Catholic church which the priest visits once a month, and an Evangelical church. None of the other villages has a church. Each village has a primary school while the *colegio* (high school) used by students from all four villages is located in Choloma. Jutosa has a health clinic attended by a nurse twice a week, who gives advice and vaccinations but who has few other medicines. Jutosa also has a representative of the national family planning organization who provides contraceptive pills and condoms at a heavily subsidized price. No medical check is required for the purchase of pills (Dean, n.d.). This service is not available in the other three villages. The nearest health clinic for the other villages is in Choloma; there are other health facilities in San Pedro Sula. The nearest telephone exchange, post office, agricultural store, bank, and hardware stores are in Choloma.

Jutosa is the only village with electricity to most of the households and water taps in most of the yards. In all four villages, houses are usually wattle and daub with palm-frond roofs, although there are also a number of two room cinder block houses with asbestos or tin roofs. Water in Caraos is obtained from wells or from nearby streams. In Laureles, and Jardines water is brought from streams to the houses. None of the villages had a treated water supply. There is no sanitation service or "garbage pick-up" in any village. There are no toilets in any village, but a percentage of people from each village have latrines (Dean, n.d.).

History of the SSLP Villages

The Caribbean coast is often affected by hurricanes. In 1974 Hurricane Fifi came ashore on the north coast with devastating results. The original town of La Jutosa with 473 people was totally destroyed as a wall of water swept through the town; seven people survived. The new town of La Nueva Jutosa (Jutosa) was settled by rural subsistence farmers from the small, surrounding mountain communities who lost all of their crops and many of their homes, but few of their lives, at the time of Fifi. All four study communities were villages which were established and settled after Fifi.

With the international demand for meat and cotton, after World War II, many large landowners began to cultivate land which had been leased to sharecroppers or neglected. Many rural subsistence farmers were evicted from the land they had been cultivating and many migrated towards the north coast where the banana industry and San Pedro Sula offered jobs and services that were unavailable elsewhere in the country. Approximately one-third of the population of 500 in Jardines came from the southern part of Honduras. The people who settled Laureles and Jutosa are mostly from the surrounding region and from mountain villages.

Caraos was established as part of a government resettlement program. Subsistence farmers had moved into the hills behind San Pedro Sula and were planting their milpas on previously forested private land. The Government of Honduras moved these squatters to Caraos and provided some of them with cinder block houses (one room with no windows, two doors and a tin roof), as part of a housing development program. Caraos is situated 8 kilometers north of Choloma surrounded by swampland. It is plagued with mosquitoes and often flooded, particularly during the wet season. This flooding results in contamination of the domestic water

sources, destruction of crops, damage to the houses, and limits transportation.

Selection of Villages

At the beginning of the SSLP, the project's national counterpart organization, *Horizontes de Amistad*, was responsible for selecting the villages which were to participate in the project. Selection was reported to have been based on the following facilities: 1) access to the village, each village must have a road good enough to be able to transport pigs, 2) an adequate supply of water to run a pig farm, 3) sufficient land to construct a pig farm, and 4) political considerations. SSLP and *Horizontes* personnel visited each of the proposed villages and talked to women who were considered by *Horizontes* personnel to be civic leaders or active in women's groups. These identified, potential innovators within each community were asked to advise others throughout the village about the SSLP and were given a date when the project staff would return to begin the organization of the cooperative group. Consequently, the project was dependent upon the existing communication network within the village and the people that they first contacted to diffuse information about the project. There are only 50-200 families within these villages, and it appears that most people in the villages had heard about the SSLP. How many people were excluded from the SSLP due to lack of information and communication about the project was not discovered. The final selection of the four villages for incorporation into the SSLP was dependent upon the recommendation of the national *Horizontes de Amistad* staff for whom political rather than social or technical perspectives seem to play a considerable part in the decision-making process.

SSLP Activities

In each selected village, the SSLP staff held human resource workshops concerning group dynamics and organized the women into cooperative groups. The SSLP helped the women in each cooperative group elect officers, the *junta directiva*. Project staff conducted interviews with the women in the *junta directiva* in each village at the beginning of the project. This interview attempted to establish the economic level of the women, their experience with banks and markets, and their participation in other groups and programs. The women had also received seminars on credit, bookkeeping and accounting procedures.

A great deal of time was spent by project staff in organizing the women into cooperative groups and helping them to function together effectively. Less than half of the women had participated in some type of cooperative group before but most such groups had not been able to accomplish anything before they dissolved. As Cecilia Callejas and Christina Gladwin reported in "Examination of Factors Limiting the Organization of Rural Women in Honduras" (1983), it has been very difficult to establish and maintain the existence of rural women's groups in Honduras due to a variety of factors, not the least of which are conflicts within groups and a lack of government or private credit facilities for women.

The *entrenadoras* supervised the acquisition of land and a water supply for the pig farms, and the construction of each pig farm and its drainage system. In three cases, the women made all of the cinder blocks themselves that were used in the construction.

The *junta directiva* of the SSLP groups were taken to visit a bank, the agricultural supply store, commercial pig farms, and the project's pig farm at Laureles, and encouraged to talk to people and ask questions

during these visits. Most of the technical information which the RSW received was provided by the project personnel. There was some personal communication interchange among the RSW from the various villages, however, once more than one village had acquired pigs, visits to each others pig farms were discouraged because of the perceived danger of transmitting pig diseases.

Technical Training Prior to the Use of Videotape Programs

Each of the four SSLP groups are at a different stage within the project's training schedule despite the original intent for all cooperative groups to proceed at more or less the same rate. Prior to the first week in August, when I began my study, the eight Laureles women had received numerous talks on pig keeping from the OEF Project and from an advisor from the Ministry of Natural Resources who was collaborating with the project. The SSLP *entrenadora* for this village had given three talks which dealt with breeding and the care of pregnant sows and piglets. The Laureles group had, by this time, kept pigs on their own pig farm for four months and had already had two litters of piglets. They had approximately 20 pigs, sows and piglets at the time of the first questionnaires. Also within this group were two women who had previously been employed as workers on pig farms which are located close to their village. One woman's husband is currently in charge of one of these pig farms. The Laureles group is comprised of eight members.

In Jutosa, the SSLP group of 11 members had received by the beginning of August only one of the three talks on breeding, which had been given by the same OEF *entrenadora* in Laureles. They received their first pigs three months before the first questionnaires were given. Their pigs had not had any pig litters. Of their three original pigs, one had

fallen when it was taken out of the truck at the pig farm and had to be destroyed, and a second had fallen and aborted. They had approximately eight pigs but no piglets by the first week in August.

In Caraos, the group of 14 members had not received any talks on breeding, the care of pregnant sows or piglets. Before they received their first pigs, approximately 18 pigs for fattening, they received only one talk on sanitation, feeding and general care of pigs. They had received their first pigs two weeks before the first questionnaires were given.

In Jardines the SSLP group of 15 members, at the beginning of the study, had not received any specific talks on pig keeping from the project. They had just started construction of the pig farm when the first questionnaire was given.

A technical advisor - livestock expert was not hired until August 1985. Prior to this time the SSLP staff relied upon advice and technical assistance from the Ministry of Natural Resources, and the training in pig keeping which staff members had received from OEF. One of the Peace Corps volunteers had raised pigs as on his father's farm, but no other staff member had any prior experience with pigs.

Other Development Projects

There had been throughout the time of the study, various other cooperative women's groups in all four of the villages. These groups had been organized primarily by Government of Honduras institutions such as *Instituto Nacional Agraria* (National Agrarian Institute) the *Ministerio de Recursos Naturales* (Ministry of Natural Resources [MNR]) and CARITAS (sponsored by the Catholic church). Although such groups had imparted some human relations and group dynamics training and consciousness-

raising, none of these efforts had been coordinated with each other. Funds were very limited and no real income-producing activities resulted.

In only one village had there been any attempt to help women raise pigs before. Two of the women in Jardines had participated two years ago in a Food and Agricultural Organization (FAO) Pig Project. Each woman had been given three pigs to raise in a corral next to her house; a total of 15 pigs were given to five families. Within three months, all of the FAO pigs had died of cholera, even though the people had been told that the pigs had been vaccinated against the disease prior to their arrival.

In Caraos, Justosa and Jardines an epidemic of pig cholera had killed all pigs two years before this study. For no clearly discernible reason, Laureles did not suffer from this epidemic. Despite an intensive vaccination promotion program by MNR, pig cholera remains the most significant limiting natural factor to rural pig production in Honduras.

In Jardines, MNR sent an extension agent to organize women from Jardines into a cooperative group to produce pigs. This occurred several months after the SSLP had already organized their cooperative group. The result was a loss of membership in the SSLP group, a great division in the community, bad feeling between the MNR extension agent and SSLP staff and a delay in the SSLP timetable. Six months later the MNR women's group was told by MNR that they would not be able to get funds from MNR to raise pigs and in the absence of alternative credit sources the group decided to grow vegetables instead.

Chapter 7

METHODOLOGY

The research for this study was undertaken over a period of four months, from July through October 1985, in rural villages in Honduras, Central America. The first three weeks of the study were spent familiarizing myself with the Small-Scale Livestock Project (SSLP), the women in the SSLP groups, and the staff of the project. Background information was collected during this time, on the project and the four villages in which the groups were established. I also visited two pig farms which were not part of the project, in addition to all of the pig farms within the project. I discussed the proposed content of the videotape programs with project staff and veterinarians, and designed and field tested the questionnaires.

Study Population

At the time of the study the SSLP had formed groups of rural subsistence women (RSW) in each of four villages: Los Caraos (Caraos), La Nueva Jutosa (Jutosa), Los Jardines del Norte (Jardines) and San Jose de los Laureles (Laureles). These four groups were comprised of 14, 11, 15 and 8 members respectively, giving a total of 48 members. The primary function of the sole male was as a watchman for the pig farm in Jutosa. He was of below normal intelligence and was therefore not included in the survey questionnaire because he was unable to answer any of the questions. One woman was also excluded from the study because she was seriously ill and unable to participate in the study. One woman in Jardines who was attending high school in another town was also unable to

participate in the study. The population of the study at Time 1 (T1), when the questionnaire was first given, was thus 14 in Caraos, 9 in Jutosa, 14 in Jardines and 8 in Laureles, a total of 45.

By Time 2 (T2), when the questionnaire was given for the second time, the study population had been reduced to 40: 11 in Caraos; 8 in Jutosa; 13 in Jardines; and 8 in Laureles. Three women did not view the second series of videotape programs, although several opportunities were provided to them, and two women had been asked by the rest of the group to leave the project. As a result, these five women did not take the questionnaire at T2 and are not included in any comparisons of change.

Nine women were randomly selected from Laureles and are included within the study population as a control group. Although this group was randomly selected, if the woman selected was in the SSLP group, she was excluded and another woman was randomly selected.

Within the SSLP groups, there are 2 sub-groups (Trip 1 and Trip 2) of eight members each who went to the United States of America (USA) for 12 days during the study period. The trips were financed by an Agency for International Development Peace Scholarship Program and the women visited numerous pig farms and received training in pig keeping and management while there. The two groups followed essentially the same program and received similar training, although some of the women from Trip 2 not only saw how to care for the piglets, but were given "hands-on" training, including being permitted to cut the piglets' teeth, inject and castrate them. The lack of such participatory training was one of the criticisms made by the first group. Unfortunately, neither I nor the SSLP was aware of the prospective trip when my study was designed or initiated.

Trip 1 was comprised of two people from Jardines, two from Laureles,

three from Caraos and one from Jutosa. Trip 1 went to the USA from September 8 to September 20, 1985. Since these women left for the USA before they saw the videotape programs, they have been excluded from any analysis involving change caused by the videotape programs. They are, however, included in the comparisons of scores with Trip 2 women.

Trip 2 was comprised of one person from Jardines, two from Laureles, two from Caraos and three from Jutosa. Trip 2 left for the USA September 29 and returned October 11, 1985. These eight women were included in all comparisons, since they saw the videotape programs at the same time as the women who did not go on a trip and their interviews at T2 were completed before they left for the USA.

Questionnaires

Encuesta de Manejo # 1

A general questionnaire (*Encuesta de Manejo*) of 38 questions was devised in order to test the knowledge of RSW on several aspects of pig keeping. This questionnaire was essentially divided into three major subject areas: 1) twelve questions on aspects of pig breeding, 2) eleven questions on sows and the care of pregnant pigs, and 3) twelve questions on the care of piglets. After giving this questionnaire to SSLP women in one village, one question was deleted because no one had understood it. For subsequent analysis of the study results, five additional questions were excluded either because they were repetitive or because they did not fit in well with the above categories. A total of 32 questions on these three aspects of the knowledge of pig care were thus used for analysis. When the initial knowledge questionnaire was given at T1, additional questions were also asked of the women regarding their present or

previous involvement in cooperative groups, and whether or not they kept pigs elsewhere, if so what types, and for how long they had kept them (see Appendix A1 for a copy of the questionnaire).

Encuesta de Manejo # 4

The same 37 questions were asked of the control group, the random sample of women from Laureles, with additional questions relating to whether or not they kept pigs, their involvement in women's cooperative groups and demographic questions (see Appendix A2).

Encuesta de Manejo # 2

The questionnaire, comprised of the same 37 questions, was asked again at Time 2 (T2) after the women had seen the videotape programs. Additional questions were also asked at this time about the SSLP, other information on pig keeping which the women might have received since T1, and information on the pig practices which the women used with their *criollo* (native) pigs (see Appendix A3).

Encuesta de Manejo # 3

The questionnaire, together with the additional questions given to the other women at T2, was given a third time (T3) to each of the two groups of eight women who went to the USA, after they returned (see Appendix A4).

Coding

As in many third world countries, learning by rote is the most common method for learning. The difficulty with learning by rote or memorization when dealing with animals is that situations and conditions change and one fact may often not be universally applicable. For example, let us assume that a woman has learned by rote that a pig should eat the

same amount of food when it is pregnant as before it became pregnant. If however, the pig was given too much food before it became pregnant the woman who has learned the fact by rote will continue to give the pig too much food and may cause its death and the death of its piglets. Therefore, when teaching RSW technical aspects of pig keeping it is very important to know whether or not the women understood the concepts behind the questions.

The answers to the questionnaire given at T1 were therefore scored on a "1-5" scale of codes: "1" signifies that the women answered the question correctly and understood the underlying concept of the question; "2" signifies that they answered the question incorrectly but understood the concept; "3" signifies they answered the question correctly (by rote or by chance) but have not understood the concept; "4" signifies an incorrect answer and that they have not understood the concept; "5" signifies that they did not know or did not answer the question.

I made a subjective decision as to whether or not the woman understood the concept, based on her comments and answer to that question and other questions on the same subject. For instance, when the women were asked when a pig should be vaccinated the following answers would be scored as below. If a woman answered that a pig should be vaccinated at two months (six weeks), six months, and then yearly, her answer was scored as 1, correct answer and concept understood. If a woman answered that she did not know exactly when but that they should be vaccinated twice when they are young and then every year, her answer was scored as 2, incorrect answer but concept understood. If a woman answered once at two months, her answer was scored as 3, correct answer but concept not understood.) (For coding for questionnaires see Appendix B).

Although I am sure that the way in which some of these answers were scored could be argued, I felt that the analysis of the data that this type of scoring would permit would be more beneficial to the SSLP and the women themselves.

When the questionnaire was given to the control group at T1, the code "7" was also used. The code "7" means that a woman was not asked the question but that there was a very high probability that she would not know the answer since she had answered simpler questions in the same subject answer with "I do not know". The code "7" was used only for the control women who were not members of any SSLP group and were unlikely to have had any formal training about pig keeping. It was not possible to ask these women all 37 questions after it had become clear that the women had no knowledge whatsoever about the keeping or care of pigs.

When the questionnaire was given at T2 and T3, there were two additional codings: "6" which is the same as "1", but in the answer the woman mentioned a fact or quotation taken directly from the videotape programs; and "8" which is the same as "1", but the woman mentioned a fact that she had learned during her trip to the USA and one which had not been included in the videotapes or anywhere else.

Demographic Data

As background information, demographic data were also collected on each woman in the study population using a separate questionnaire (see Appendix C). Combining the three knowledge and the demographic questionnaires, a total of 164 verbal questionnaires, of approximately 50 questions each, were conducted over a three month period of time beginning in the first week of August, 1985.

Administering the Questionnaire at T1

A little more than half of the SSLP women can read although only 21 percent have above a first grade education. Since the functional illiteracy rate was so high, I gave the questionnaires to the women verbally each time and wrote down their answer, as well as any other comments they may have made. I personally conducted each interview, often accompanied by my infant son and/or my four year old daughter. I believe that having my children with me helped me to gain the trust and confidence of the SSLP women. These women could more readily identify with a mother and her children than with just a "foreign interviewer". I explained that I was working in collaboration with the SSLP but that I was not one of their staff. I also explained that the intent of the questions was to determine what the women did not know about pig keeping so that the SSLP could improve its technical training program and help the women further on those aspects. The majority of the SSLP women had never been formally interviewed before.

Individuals in the SSLP groups in the four villages, including Trip 1 and 2 women, were given their first questionnaire (*Encuesta de Manejo #1*) to determine their base level of knowledge on pig care and management.

Control Group

After this first questionnaire was given, it was noted that the women in Laureles had a very high basic knowledge relating to pigs and pig keeping. This in part, was to be expected since the group in Laureles had received the most information on pig care from the SSLP staff and *entrenadora* and also had the most experience in raising pure

bred pigs in the SSLP pig farm. Since there were four pig farms, besides the SSLP's pig farm, in and around Laureles, I felt that there may have been other factors which could have increased the women's general pig knowledge. To determine whether or not this was the situation, I included a control group in the study population. These nine women, who were not associated with the SSLP, were each given the *Encuesta de Manejo #1* and the Demography *Encuesta* questionnaires. It was not possible to include these women in the rest of the study due to their disinterest.

Videotape Programs

After completing *Encuesta #1*, I visited two local pig farms and discussed with the owners and with the veterinarian employed by one of them, what they considered to be the most important aspects of pig keeping. After several visits, to these farms and after discussions with the staff of the SSLP, I videotaped these people as "actors" demonstrating several aspects of pig keeping. The videotape was then rough edited and these segments assembled together to make a series of videotape programs on pig keeping.

The videotape programs were made in Honduras on pig farms similar to the ones which exist in the SSLP villages. The content of the videotapes was based on brochures produced by the OEF Pig Project which covered various aspects of pig keeping and management and on discussions with two veterinarians. The videotape programs were narrated by these veterinarians, one of whom owns and manages his own pig farm (100-200 pigs) and also acts as a consultant to the OEF Project.

These programs were viewed first by the two veterinarians and owners of the pig farms and then by the SSLP staff. Two series of

programs were approved by the Project Director for use in the field with the SSLP groups. The first series was comprised of two programs (approximately seven minutes each) on care of pregnant pigs and care of piglets immediately after birth. The second series was divided into three parts (approximately six minutes each) on feeding and fattening young pigs, sanitation in the pig farm, and castrating piglets.

Presentation of the Videotape Programs

The videotape programs were then shown in all four villages; one series of programs on one day and the second series on a subsequent day. Prior to showing each series, I gave a brief introduction to the videotape programs and asked that if anyone had any questions, that they address such questions to the OEF project staff. During the playback of the first series, I paused the videotape eight times (at logical stopping points) and repeated the most salient points which had just been covered. In the second series, I paused the videotape six times, again to repeat the most important points. There was also a short five minute pause in the middle of each series to drink Coke, eat cookies and relax. This was done so that the women would not become bored with the videotape programs, and that their learning retention would be increased.

Each series was shown on a separate day under approximately the same conditions. The videotape programs were viewed on a 10" monitor which was powered by a portable generator in three villages where there was no electricity. In Caraos the videotape programs were shown at the pig farm and on the second day, in the school building (the school was closer to town). In Laureles and Jardines the members watched the programs on porches outside the houses of SSLP members. In Jutosa, the videotape

programs were viewed inside my house. Jutosa was the only village that had electricity. All women in the study population viewed the videotapes together, except for the Trip 1 women who had left for the USA.

Since not all of the women in Jutosa could attend the two presentations of the videotape program, I showed the programs two additional times using the 5" battery-operated monitor. Since only two people were watching at one time, it was felt that the use of a smaller monitor would not significantly change the presentation.

Administering the Questionnaire at T2

Within two weeks after the women had viewed the videotape programs, before the women in Trip 1 returned, all of the women were given *Encuesta de Manejo # 2* and the Demographic Questionnaire. Again, I personally interviewed all of the women individually in their own house, with verbal questionnaires and wrote down their answers.

Trip 1 Women

When the Trip 1 women returned from the USA, they were individually given Encuesta de Manejo # 3 to ascertain the knowledge which they had acquired on their trip on three aspects of pig keeping: breeding, care of sows, and piglets. When these were completed, the women were shown the videotape programs under similar conditions to those used for presentation to the majority of the SSLP women. The only difference was that these women viewed the videotape programs on the 5" monitor in smaller groups (maximum of five). They were then given the questionnaire again (*Encuesta de Manejo #2* at T3) and the Demographic Questionnaire.

Trip 2 Women

When Trip 2 women, who had already seen the videotape programs before the trip, returned from the USA, each member was given *Encuesta de Manejo #3* at T3.

These two groups of eight women each of which travelled to the USA (Trip 1 and Trip 2) are considered separately for some of the analyses of the results of this study.

Seminar

Since it was not possible to use the portable video system as a communication channel between the RSW in the SSLP groups and the project staff, I conducted a seminar in Spanish for the SSLP staff. In this way, I was able to provide some immediate feedback from the women in the SSLP groups to the project staff regarding their perceived needs in technical training on pig care. In this seminar, I discussed the level of knowledge of the women in different areas of pig keeping as demonstrated by the preliminary results of the questionnaires. Some of the comments which had been made to me by the women during the course of my study were also discussed. As a result of this study I made certain recommendations to the SSLP regarding the technical training of the RSW. These recommendations were acknowledged and I was told that they would be given serious consideration.

Portable Video System

I videotaped programs at two pig farms using a JVC Video Home System HR2200U videorecorder and a Hitachi GP5AU camera. It took me two days to videotape. I also used a Slik tripod, Bogon monopod, a Calrad 10-4

lavalier microphone, and a MURA WMS-49-T wireless microphone for recording. Since this equipment is lightweight and portable, it can easily be transported by one or two persons and operated by one.

The programs were assemble edited with a tabletop VHS videorecorder and the portable videorecorder in one afternoon. The videotape programs were played back in the field on either a 10" Panasonic CT-110M color video monitor or a 5" color JVC CX-610US monitor/receiver with the portable, battery-operated videorecorder. When the 10" monitor was used, it was necessary to use a portable generator. The 5" monitor operated from its own battery pack but could only be used with small groups. Although the technical quality of the videotape programs was not professional, it did not seem to distract the viewer from the content of the programs.

One of the aims of this study was to demonstrate that relevant and effective videotape training programs could be made in the field by one person with a minimum investment in time, energy and money. The portable video system used, including all accessories and two monitors, cost approximately $4500 (basic camera, videorecorder and one monitor - $2500, 1985 retail prices). After the initial purchase of equipment, the only additional expense is for videotapes, at approximately nine dollars each for a three hour tape (1985 retail price).

Chapter 8

RESULTS OF THE STUDY

Knowledge of Pig Keeping

All statistical analyses were made on SAS version 0.5, using a one way analysis of variance, *t*-tests and paired *t*-tests. The questionnaire was given to the SSLP women in all four villages twice: Time 1 (T1), at the beginning of the study as a measure of their initial knowledge; and at Time 2 (T2), after viewing the videotape programs. The control women were given the questionnaire only at T1. The 16 SSLP women who went to the USA were given the questionnaire at a third time (T3) after the trip. The questionnaire had a total of 32 knowledge questions which were analyzed (ATOT at T1 and BTOT at T2). The questionnaire was divided into three sections: "breeding" (ATB at T1 and BTB at T2) with nine questions, "sows" (ATS at T1 and BTS at T2) with 11 questions, and "piglets" (ATP at T1 and BTP at T2) with 12 questions.

The answers to the questionnaire were coded in such a way as to distinguish between a correct or incorrect answer and between knowledge or lack of knowledge of the concept of the question. The original answers were coded "1 to 8" (see Appendix D and for a description of the coding see Chapter 7) and were then collapsed to "1 to 5". These data sets were further collapsed in three different ways: 1) when coded answer 1 is correct and is scored as "1", all other codes scored as "0", 2) when coded answer 1 or 2 is correct, and either is scored as "1", all other codes scored as "0", and 3) when coded answer 1 or 3 is correct, and either is scored as "1", all other codes scored as "0".

When the score 1 is correct, it means that the women answered the questions correctly and understood the concepts behind the questions. When 1 and 2 are scored as correct, the women answered the questions correctly or incorrectly but understood the concept. When 1 and 3 are scored as correct, the women answered the questions correctly but understood or did not understand the concept. The questionnaire scores are therefore examined and compared for the three situations. Thus, those questions answered by rote without understanding the concept will account for the variation in score between 1 is correct and 1 and 3 are correct. The difference between the scores 1 is correct and 1 and 2 are correct represents the women who understand the concept of the question but have not remembered the exact fact. It is important to distinguish between these women and those who neither understand the concept nor the factual answer. These latter women have much more to learn than the women who already understand the concept.

Learned Knowledge

With respect to individuals, when 1 is correct, one person had a lower score (31-29) at T2 after seeing the videotape programs, one person had the same score (13-13), and 38 women had a higher score after seeing the videotape programs (see Appendix E1).

When answer 1 is correct (answer right and concept understood), the mean score for the total questionnaire is 15.91 at T1, and 23.66 at T2 out of a total score of 32 for the study population minus the women who went on the first trip to the USA (Trip 1) and the control group (see Appendix F for a listing of mean scores by total and part). When 1 is correct, the total mean scores for each of the three sections of the questionnaire at T1 and T2 respectively, are: "breeding" = 4.91 and

6.13, "sows" = 5.25 and 8.28, and "piglets" = 5.75 and 9.25. The *t*-tests were used to evaluate the scores at T1 and T2 by part and total and this showed that all the scores at T2 (BTB, BTS, BTP and BTOT) are significantly higher ($p < 0.0001$ [see Appendix F2]).

When answer 1 and 2 are correct (answer right or wrong and concept understood), the mean scores for the total questionnaire at T1 and T2 are 18.84 and 25.13 respectively. The mean scores for each section of the questionnaire at T1 and T2 respectively are: "breeding" = 5.34 and 6.22, "sows" = 6.75 and 8.94, and "piglets" = 6.75 and 9.97. The *t*-tests were used to evaluate the scores at T1 and T2 by part and total and the scores at T2 (BTB, BTS, BTP and BTOT) are significantly higher ($p < 0.005$ [see Appendix F2]).

When answer 1 and 3 are correct (answer right and concept understood or not understood), the mean score for the total questionnaire at T1 and T2 is 18.03 and 24.75 respectively. The mean scores for each section of the questionnaire at T1 and T2 respectively are as follows: "breeding" = 5.13 and 6.28, "sows" = 6.34 and 8.78, and "piglets" = 6.56 and 9.69. The *t*-tests were used to evaluate the scores at T1 and T2 by part and total, and all scores at T2 were significantly higher ($p < 0.005$ [see Appendix F2]).

Learned Knowledge by Village

In order to determine the amount of knowledge learned by the women in the SSLP groups a one sample paired *t*-test was used to evaluate the difference in total score (B-A=D) and difference by part by village (see Table 1). The women who went on Trip 1 were excluded since they went to the USA before they saw the videotape programs. The women who went on Trip 2 were included since they saw the videotape programs before they

went to the USA and at the same time as the women who did not go on any trip. In addition, since the control group did not see the videotape programs, they were also excluded.

Where 1 is correct, there was a significant difference in the change in the total scores (scores at T2 - scores at T1) on the questionnaire between T1 and T2 ($p < 0.001$) for all four villages (see Table 1). All four villages learned significantly from watching the videotape programs (see Figure 3). When 1 and 2 are correct, the change in total scores for Laureles was not significant, but the change in the other total scores for the other three pig groups was significant ($p < 0.001$ [see Table 2 and Figure 4]). When 1 and 3 are correct, the change in total scores for Laureles was significant ($p < 0.02$) and the change in total scores for the other three villages was also significant ($p < 0.001$ [see Table 3 and Figure 5]).

When 1 is correct, there was no significant increase ($p > 0.05$) in "breeding" scores for the Laureles or Jardines groups. There was a significant increase ($p < 0.05$) in the Jutosa group scores and in the scores from Caraos ($p < 0.01$ [see Table 1 and Figure 6]).The strength of the relationship is not as strong on the "breeding" scores, as it is for the other sections. When 1 and 2 are correct, only the Caraos group scores showed any significant change ($p < 0.05$) on the "breeding" scores (see Table 2 and Figure 7). When 1 and 3 are correct, again only the Caraos group scores showed any significant change ($p < 0.01$) in the "breeding" scores (see Table 3 and Figure 8).

On the "sow" part of the questionnaire, when 1 is correct, there was a significant upward change ($p < .0003$) in the scores from the Jutosa and Caraos groups. There was also a significant ($p < 0.05$) change in the scores in the Laureles and Jardines groups, albeit not as much increase

Table 1

The Probability Values of the Differences in Scores (Time 2 - Time 1)

When One is Correct

Laureles

Difference in Scores	Probability
Breeding	1.0000
Sows	0.0250 *
Piglets	0.1438
Total	0.0001 ****

Jutosa

Difference in Scores	Probability
Breeding	0.0454 *
Sows	0.0003 ***
Piglets	0.0003 ***
Total	0.0001 ****

Caraos

Difference in Scores	Probability
Breeding	0.0142 **
Sows	0.0003 ***
Piglets	0.0007 ***
Total	0.0001 ****

Jardines

Difference in Scores	Probability
Breeding	0.0669
Sows	0.0173 **
Piglets	0.0004 ***
Total	0.0004 ***

a. The level of probability is indicated by * when $p < 0.05$, ** when $p < 0.02$, *** when $p < 0.001$, and **** when $p < 0.0001$

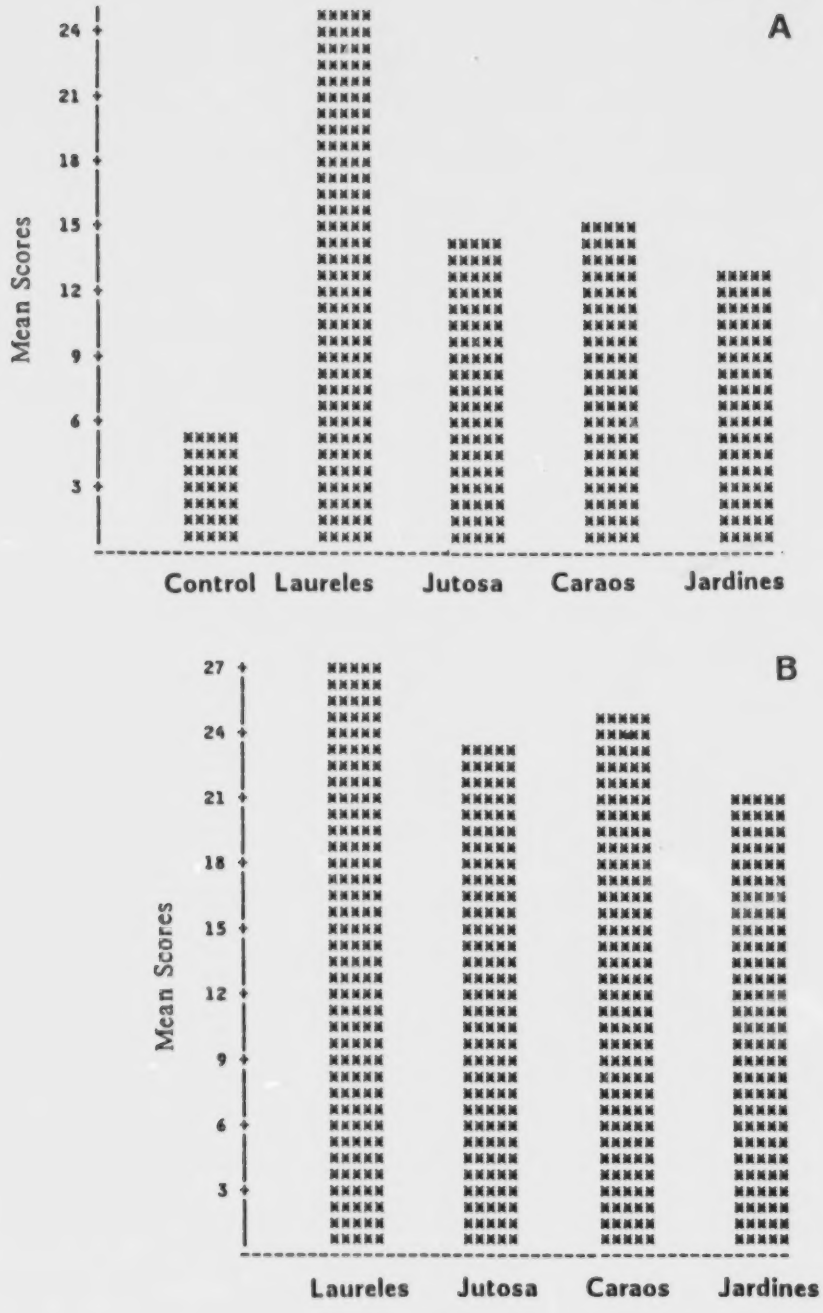


Figure 3
Mean scores from the total questionnaire, when answer one is correct (answer right, concept understood), A at Time 1 and B at Time 2, by village.

Table 2

The Probability Values of the Differences in Scores (Time 2 - Time 1)

When One and Two are Correct

Laureles

Difference in Scores	Probability
Breeding	0.7711
Sows	0.4650
Piglets	1.0000
Total	0.6109

Jutosa

Difference in Scores	Probability
Breeding	0.0656
Sows	0.0020 **
Piglets	0.0015 **
Total	0.0004 ***

Caraos

Difference in Scores	Probability
Breeding	0.0280 *
Sows	0.0047 **
Piglets	0.0006 ***
Total	0.0001 ****

Jardines

Difference in Scores	Probability
Breeding	0.1574
Sows	0.0413 *
Piglets	0.0014 ***
Total	0.0014 ***

a. The level of probability is indicated by * when $p < 0.05$, ** when $p < 0.02$, *** when $p < 0.001$, and **** when $p < 0.0001$

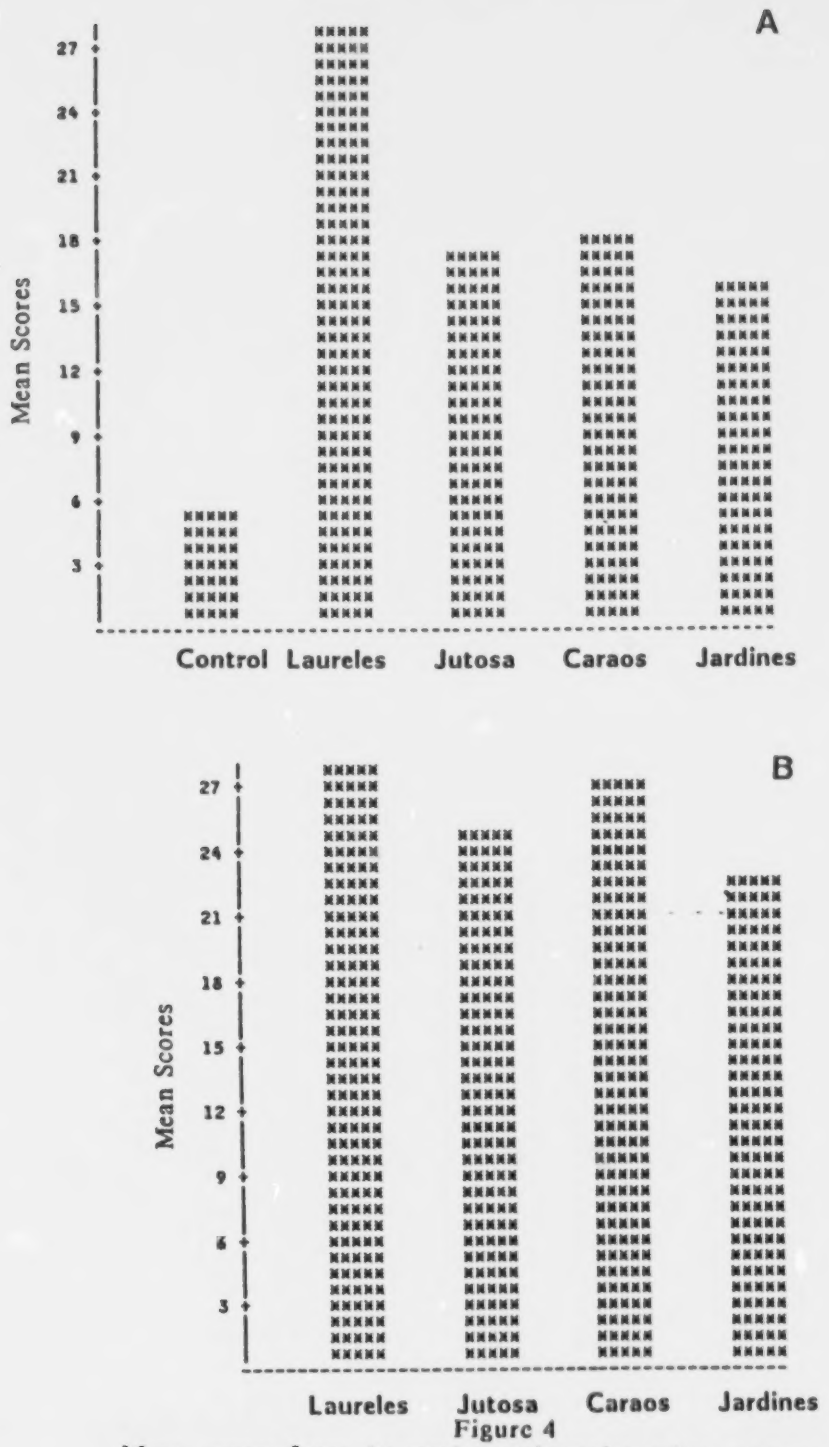


Figure 4

Mean scores from the total questionnaire, when answer one and two are correct (answer right or wrong, concept understood), A at Time 1 and B at Time 2, by village.

Table 3

The Probability Values of the Differences in Scores (Time 2 - Time 1)

When One and Three are Correct

Laureles

Difference in Scores	Probability
Breeding	0.2956
Sows	0.0583
Piglets	0.0583
Total	0.0019 **

Jutosa

Difference in Scores	Probability
Breeding	0.0930
Sows	0.0004 ***
Piglets	0.0030 **
Total	0.0002 ***

Caraos

Difference in Scores	Probability
Breeding	0.0080 **
Sows	0.0001 ****
Piglets	0.0002 ***
Total	0.0001 ****

Jardines

Difference in Scores	Probability
Breeding	0.0508 *
Sows	0.0073 **
Piglets	0.0003 ***
Total	0.0002 ***

a. The level of probability is indicated by * when $p < 0.05$, ** when $p < 0.02$, *** when $p < 0.001$, and **** when $p < 0.0001$

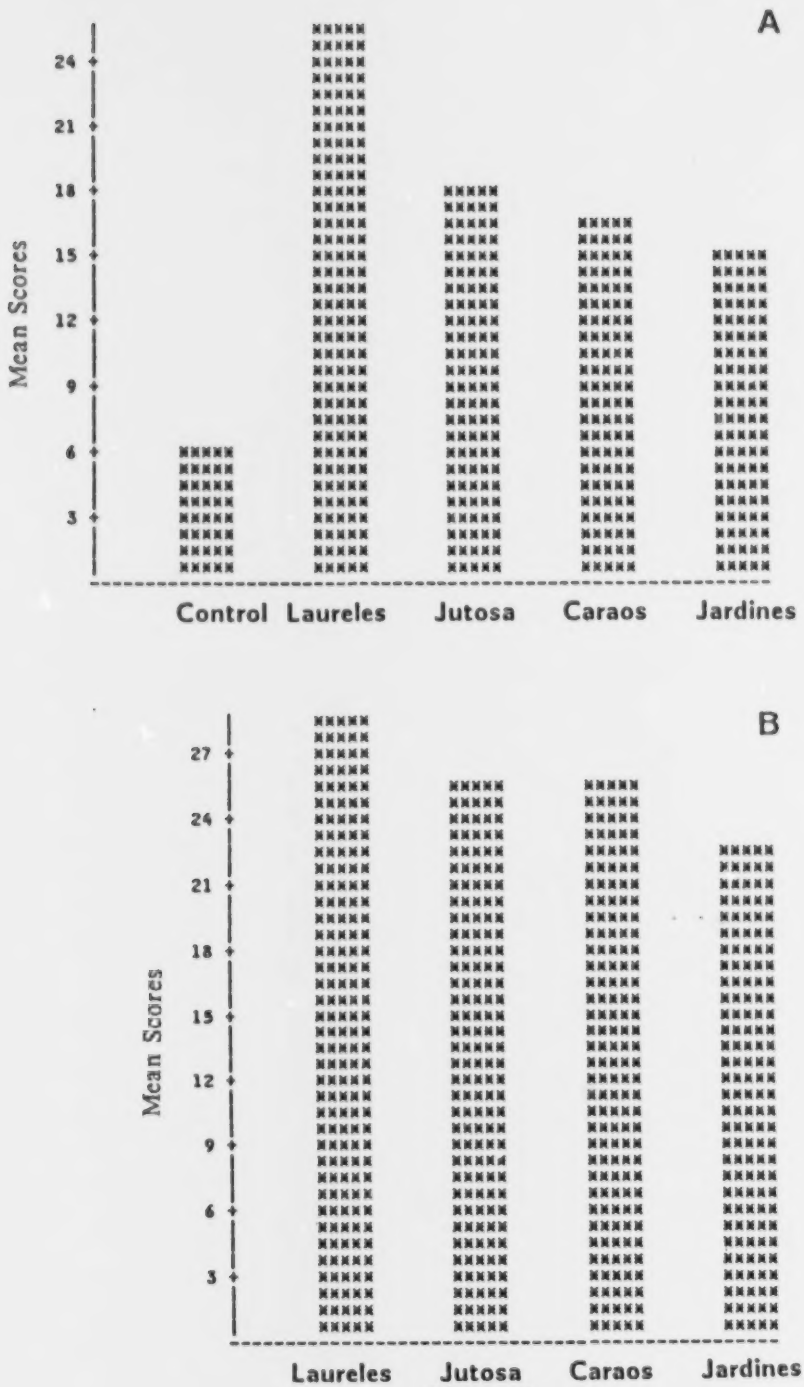


Figure 5

Mean scores from the total questionnaire, when answer one and three are correct (answer right, concept understood or not understood), A at Time 1 and B at Time 2, by village.

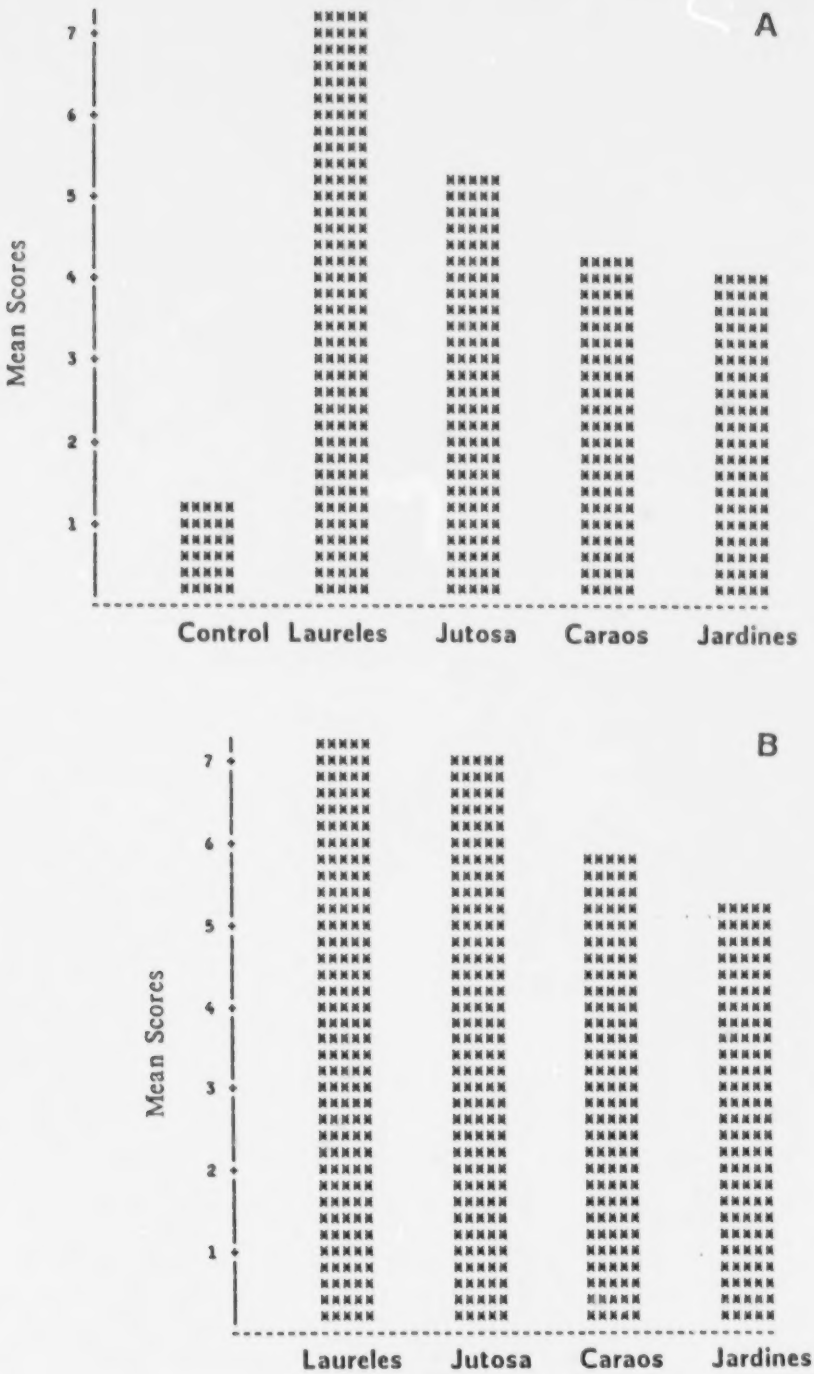


Figure 6

Mean scores from the breeding section of the questionnaire, when answer one is correct (answer right, concept understood), A at Time 1 and B at Time 2, by village.

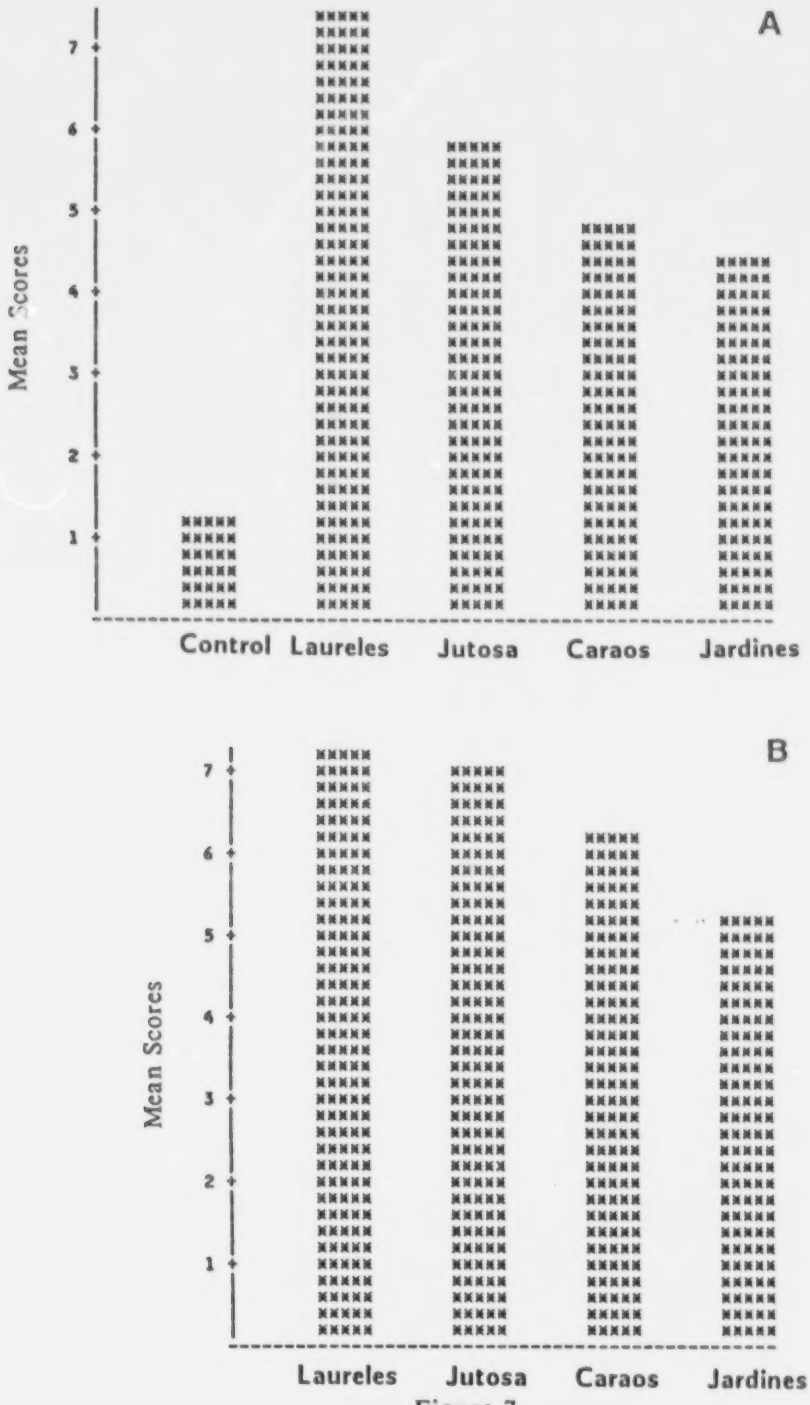
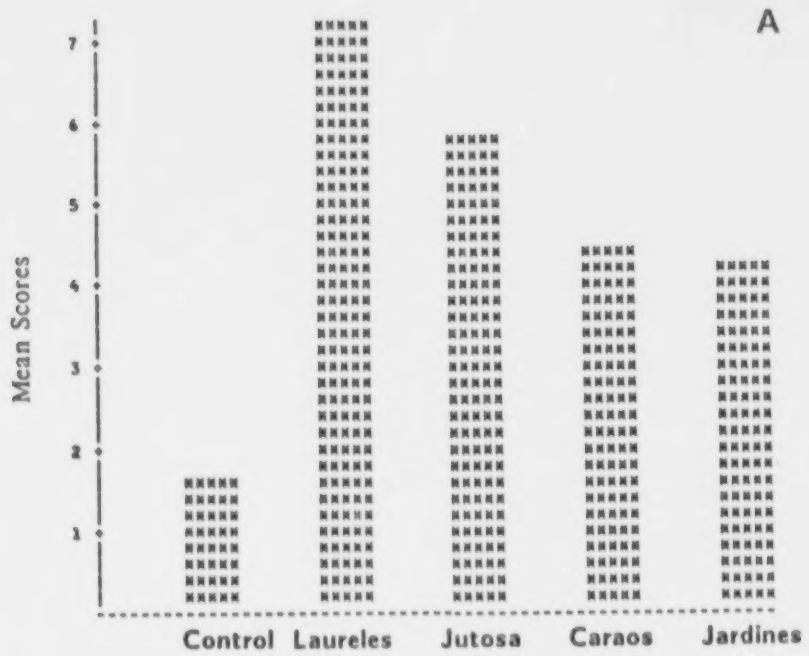


Figure 7

Mean scores from the breeding section of the questionnaire, when answer one and two are correct (answer right or wrong, concept understood), A at Time 1 and B at Time 2, by village.



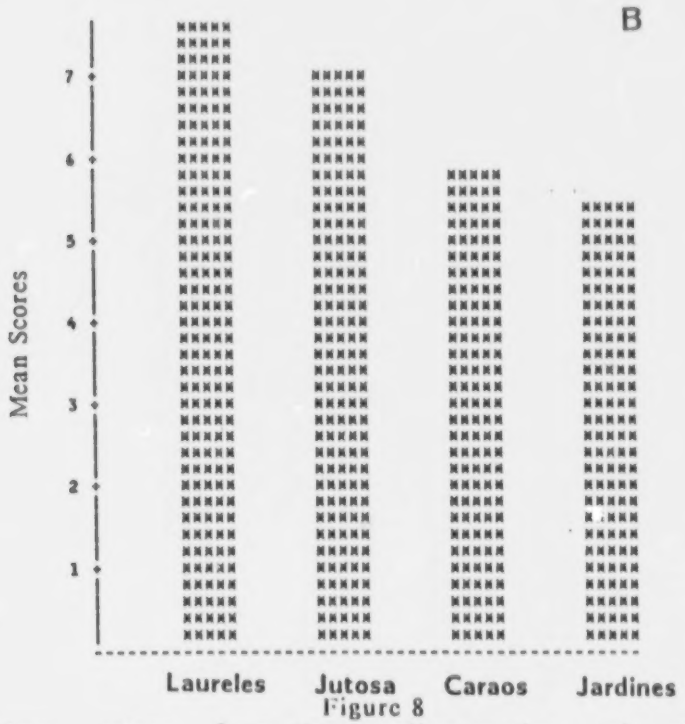


Figure 8

Mean scores from the breeding section of the questionnaire, when answer one and three are correct (answer right concept understood or not understood), A at Time 1 and B at Time 2, by village.

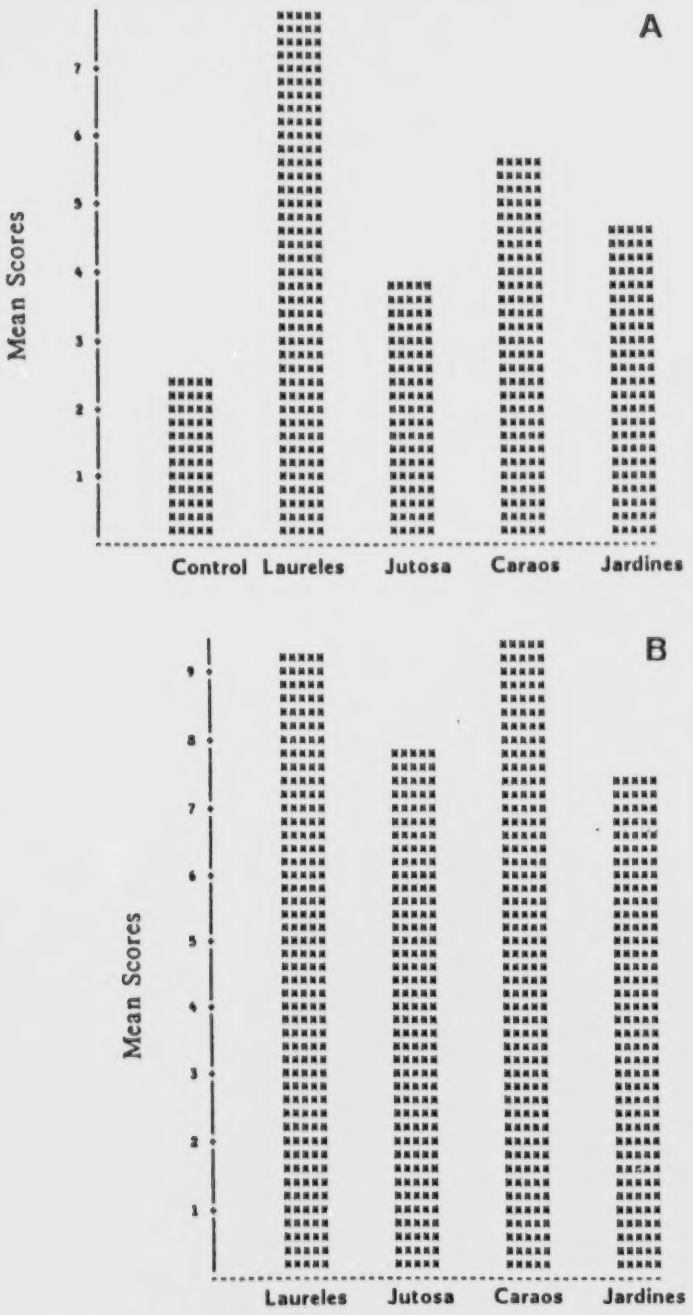


Figure 9
Mean scores from the sows section of the questionnaire, when answer one is correct (answer right, concept understood), A at Time 1 and B at Time 2, by village.

(see Table 1 and Figure 9). When 1 and 2 are correct, there was no significant change in the Laureles group's scores ($p > 0.05$), but there was a significant change ($p < 0.05$) for the other groups' scores (see Table 2 and Figure 10). When one and three are correct, there was a significant change ($p < 0.007$) in score for all groups but Laureles (see Table 3 and Figure 11).

With regard to change in scores on the "piglet" part of the questionnaire, when 1 is correct there was a significant increase ($p < 0.0007$) in scores in all groups except Laureles (see Table 1 and Figure 12). When 1 and 2 are correct, there was a significant increase ($p < 0.0015$) in all groups except Laureles (see Table 2 and Figure 13). When 1 and 3 are correct, there was a significant increase ($p < 0.003$) in the scores of all groups except Laureles (see Table 3 and Figure 14).

An analysis of variance of the difference in scores (B-A=D) between T1 and T2 was made, to determine if there was a significant difference in the change in scores, by questionnaire part and total, among the villages. When 1 is correct 1) there was no significant difference in the amount of change (or the amount learned) among the SSLP villages with respect to the "breeding" questions ($F = 1.40$, $df = 3$, $p < 0.2643$), 2) there was no significant difference on "sows" ($F = 1.85$, $df = 3$, $p < 0.1613$), 3) there was a significant difference on piglet care ($F = 4.44$, $df = 3$, p , 0.0113), and 4) there was a significant difference on the total score ($F = 6.53$, $df = 3$, $p < 0.0017$ [see Table 4]). This was also true when 1 and 3 = correct, and 1 and 2 = correct (see Tables 5 and 6).

When t-tests were made on the mean difference between the scores, by part and total and by group (when 1 is correct), the change in the groups' score when compared to each other showed that the mean score of

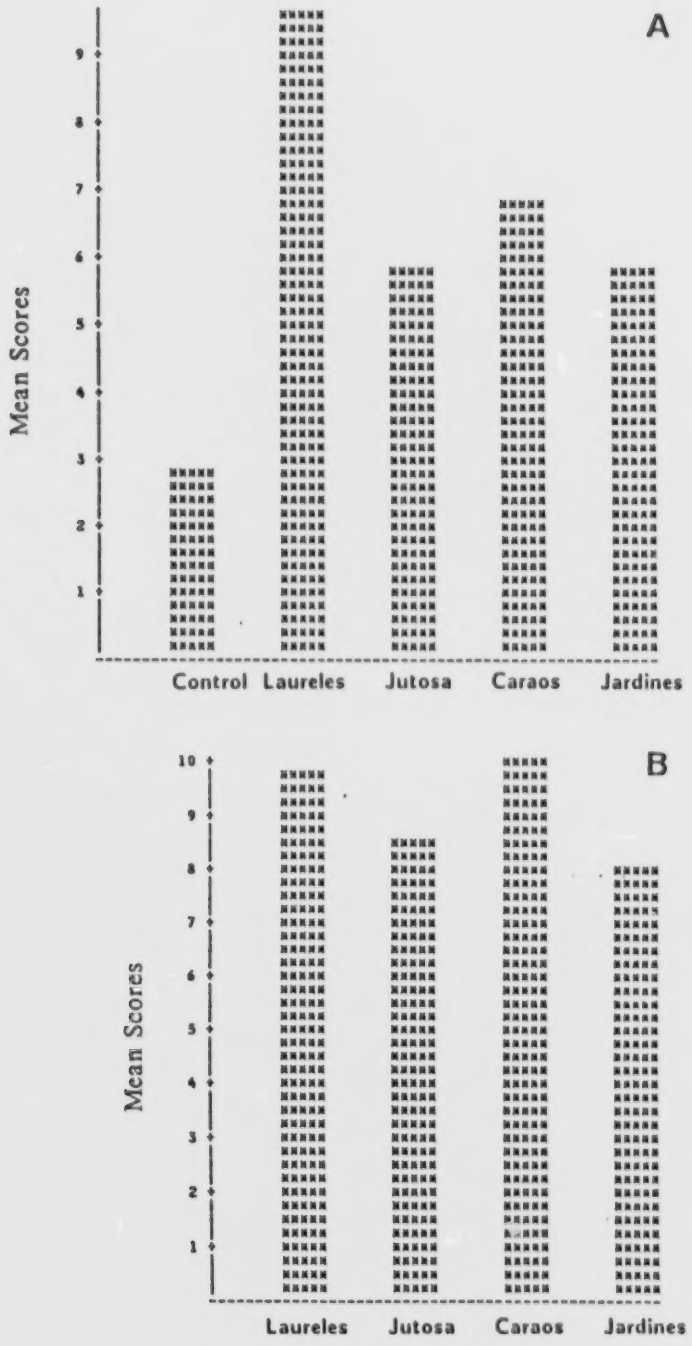


Figure 10
Mean scores from the sows section of the questionnaire, when answer one and two are correct (answer right or wrong, concept understood), A at time 1 and B at Time 2, by village.

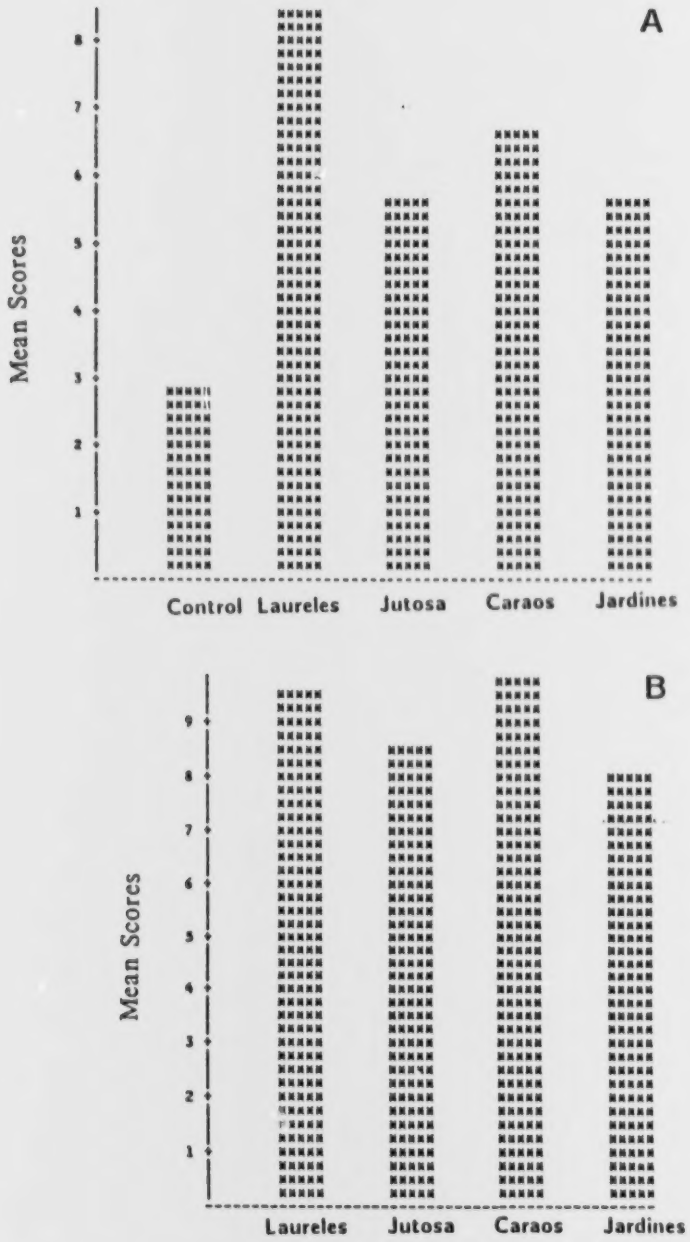
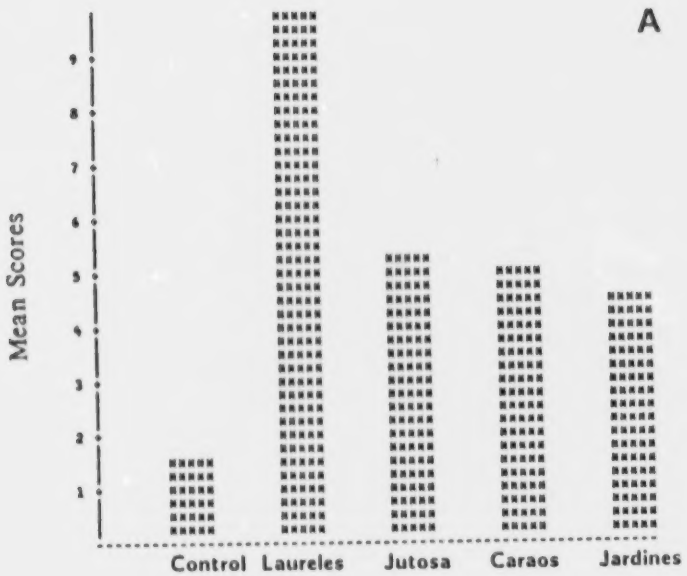


Figure 11

Mean scores from the sows section of the questionnaire, when answer one and three are correct (answer right concept understood or not understood), A at Time 1 and B at Time 2, by village.



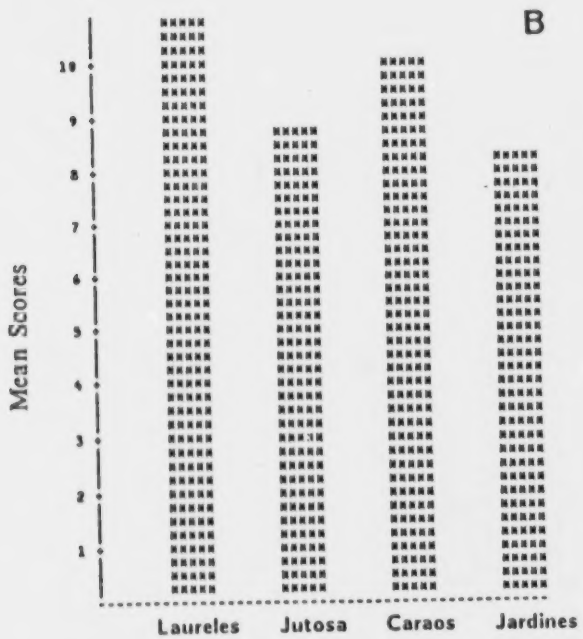


Figure 12

Mean scores from the piglets section of the questionnaire, when answer one is correct (answer right, concept understood), A at Time 1 and B at Time 2, by village.

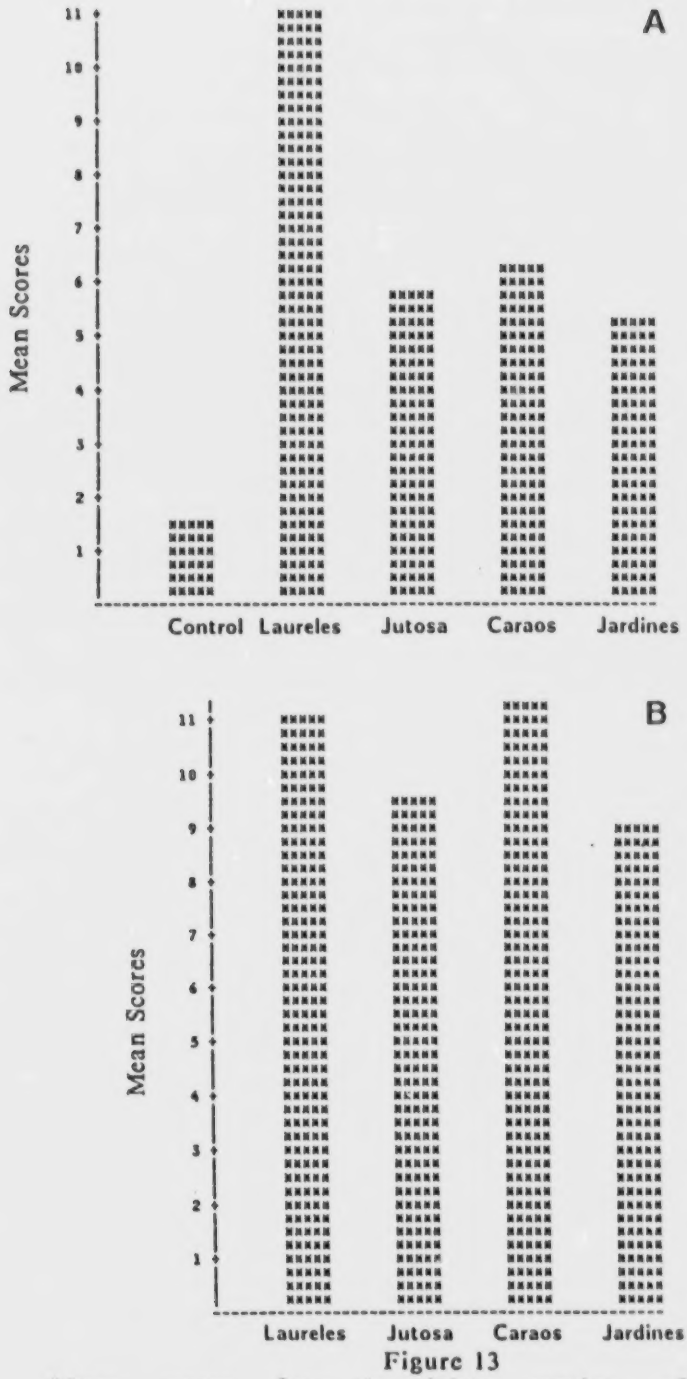
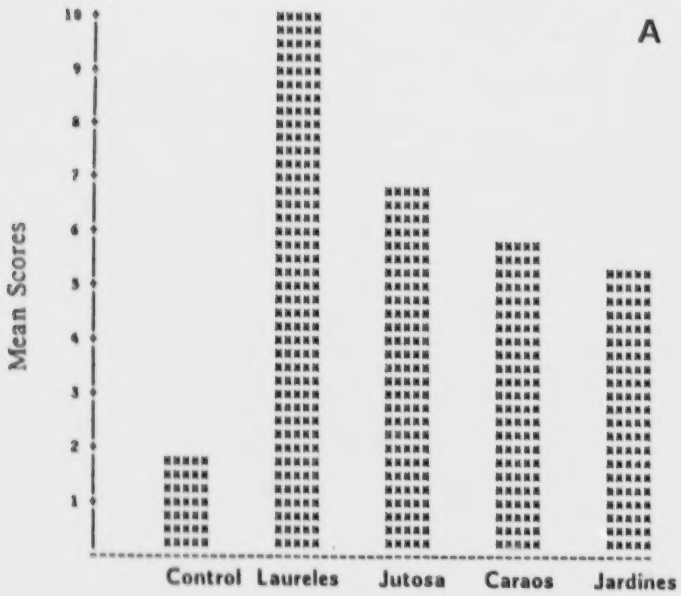


Figure 13

Mean scores from the piglets section of the questionnaire, when answer one and two are correct (answer right or wrong, concept understood), A at Time 1 and B at Time 2, by village.



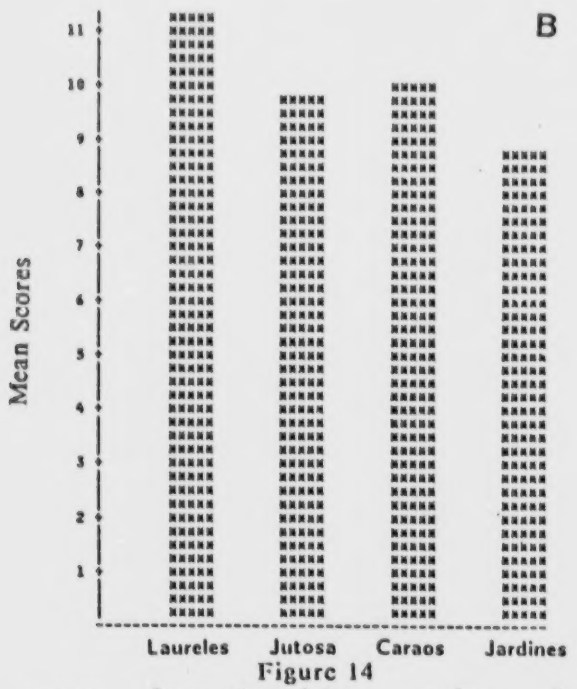


Figure 14

Mean scores from the piglets section of the questionnaire, when answer one and three are correct (answer right concept understood or not understood), A at Time 1 and B at Time 2, by village.

Table 4

Difference in Mean Scores between Time 1 and Time 2 by SSLP Group

When One is Correct

Village	N	Breeding	Sows	Piglets	Total
Laureles	6	0.000 A	1.333 A	1.000 A	2.333 A
Jutosa	7	1.857 A	3.857 AB	3.571 B	9.286 B
Caraos	8	1.500 A	3.875 B	5.000 B	10.375 B
Jardines	11	1.273 A	2.818 AB	3.727 B	7.818 B
MSE		2.966	5.096	4.211	12.653

a. Means indicated by the same letter are not significantly different at the 0.05 probability level.
b. MSE = mean square error.

Table 5

Difference in Mean Scores between Time 1 and Time 2 by SSLP Group

When One and Two are Correct

Village	N	Breeding	Sows	Piglets	Total
Laureles	6	-0.167 A	0.333 A	0.000 A	0.167 A
Jutosa	7	1.143 A	2.714 A	3.571 B	7.429 B
Caraos	8	1.375 A	3.125 A	4.875 B	9.375 B
Jardines	11	0.909 A	2.182 A	3.545 B	6.636 B
MSE		2.588	5.188	5.118	12.463

a. Means indicated by the same letter are not significantly different at the 0.05 probability level.
b. MSE = mean square error.

Table 6

Difference in Mean Scores between Time 1 and Time 2 by SSLP Group

When One and Three are Correct

Village	N	Breeding	Sows	Piglets	Total
Laureles	6	0.500 A	1.167 A	1.167 A	2.833 A
Jutosa	7	1.286 A	2.857 A	2.857 AB	7.000 B
Caraos	8	1.375 A	3.125 A	4.250 B	8.750 B
Jardines	11	1.273 A	2.363 A	3.545 B	7.182 B
MSE					

a. Means indicated by the same letter are not significantly different at the 0.05 probability level.
b. MSE = mean square error.

the Caraos women changed the most on piglet questions and total means, but the change was about the same as for the groups in Jutosa and Jardines. The three groups' scores changed significantly more than the Laureles women (see Table 4).

When 1 and 2 are correct (see Table 5) and when 1 and 3 are correct (see Table 6), there was no significant difference ($p < 0.05$) in the "breeding" or "sows" scores. The Caraos women's scores changed the most in all categories but the change was not significant ($p < 0.05$) among the women from Caraos, Jutosa and Jardines. There was significant difference between the women in Caraos, Jutosa and Jardines and the women in Laureles (see Table 5 and 6).

Initial Knowledge

An analysis of variance of the scores on the questionnaire at T1, when 1 is correct, was made to determine if there were significant differences among the SSLP women, by village, in their scores on the initial knowledge questionnaire, by part and total. The difference was significant on all parts: "breeding" ($F = 3.50$, $df = 3$, $p < 0.0252$), "sows" ($F = 8.92$, $df = 3$, $p < 0.0001$), "piglets" ($F = 13.75$, $df = 3$, $p < 0.0001$), and total ($F = 14.07$, $df = 3$, $p < 0.0001$). Paired t-tests on the scores showed that there was a significant difference on the T1 scores ($p < 0.05$) between the mean scores of the women from Laureles and those from Jardines, Jutosa and Caraos (see Table 7).

Another analysis of variance of the difference of the scores, on the questionnaire by part and total, at T1 (when 1 is correct), was made to determine if there were significant differences in knowledge, as indicated by the scores, between the SSLP women, by village, and the control women. On "breeding" ($F = 9.30$, $df = 4$, $p < 0.0001$), "sows", (F

= 8,50, $df = 4$, $p < 0.0001$), care of "piglets" ($F = 14.89$, $df = 4$, $p < 0.0001$), and total ($F = 18.83$, $df = 4$, $p < 0.0001$), there was a significant difference in initial knowledge among all the women, SSLP groups and control group (see Table 7).

Paired *t*-tests were made (when 1 is correct, 1 and 2 are correct, and 1 and 3 are correct), on the initial knowledge scores, by part and total, by village. All four SSLP groups scored significantly higher ($p < 0.05$) than the control group on "breeding" and "piglets" questions and total scores (see Table 7, 8 and 9). On "sows", the control did not significantly differ from Jutosa women ($p < 0.05$), when 1 is correct (see Table 7) but did significantly differ ($p < 0.05$) from the other three (see Table 7). When 1 and 2 are correct and 1 and 3 are correct, Jutosa scores did significantly differ ($p < 0.05$) from the control scores (see Table 8 and 9).

Laureles women scored significantly higher ($p < 0.05$) than the control group by part and total score (see Tables 7, 8, and 9). Laureles women had a mean total score of 25.00 out of 32 on the questionnaire given at T1 when 1 is correct, as compared to the control's mean total score of 4.9.

Caraos and Jardines women when compared to the control women (when 1 is correct) had significantly higher mean scores on "breeding" ($F = 8.49$, $df = 2$, $p < 0.0012$), "sows" ($F = 5.59$, $df = 2$, $p < 0.0086$), "piglets" ($F = 8.61$, $df = 2$, $p < 0.0011$), and total ($F = 12.77$, $df = 2$, $p < 0.0001$). When 1 and 2, and 1 and 3 are correct, the mean scores on the questionnaire given at T1 were also significantly higher ($p < 0.05$) by part and total as given for when 1 is correct.

Table 7

Mean Scores on Questionnaire at Time 1, By Village

When One is Correct

Village	N	Breeding	Sows	Piglets	Total
Control	9	1.111 A	2.333 A	1.444 A	4.889 A
Laureles	8	7.000 C	8.125 C	9.875 C	25.000 C
Jutosa	8	4.875 B	3.875 AB	5.250 B	14.000 B
Caraos	11	4.000 B	5.182 B	4.909 B	14.091 B
Jardines	13	4.462 B	4.385 B	4.385 B	13.231 B
MSE		4.114	3.192	3.705	18.093

a. Means indicated by the same letter are not significantly different at the 0.05 probability level.
b. MSE = mean square error.

Table 8

Mean Scores on Questionnaire at Time 1, By Village

When One and Two are Correct

Village	N	Breeding	Sows	Piglets	Total
Control	9	1.222 A	2.778 A	1.556 A	5.556 A
Laureles	8	7.125 C	9.750 C	11.125 C	28.000 C
Jutosa	8	5.625 BC	6.125 B	6.000 B	17.750 B
Caraos	11	4.364 B	6.455 B	6.455 B	17.273 B
Jardines	13	4.846 B	5.692 B	5.231 B	15.769 B
MSE		4.148	4.442	4.912	22.505

a. Means indicated by the same letter are not significantly different at the 0.05 probability level.
b. MSE = mean square error.

Table 9

Mean Scores on Questionnaire at Time 1, By Village

When One and Three are Correct

Village	N	Breeding	Sows	Piglets	Total
Control	9	1.556 A	2.889 A	1.778 A	6.222 A
Laureles	8	7.125 C	8.500 C	10.125 C	25.750 C
Jutosa	8	5.500 BC	5.500 B	6.625 B D	17.625 B
Caraos	11	4.182 B	6.273 B	5.909 B D	16.363 B
Jardines	13	4.615 B	5.385 B	5.000 B	15.000 B
MSE		3.496	3.094	3.164	16.079

a. Means indicated by the same letter are not significantly different at the 0.05 probability level.
b. MSE = mean square error.

No Significant Difference in Scores at T3 for Trip Women

To determine if the order in which the trip women saw the videotape programs had an effect on the total amount learned (scores at T3), by part and total, an analysis of variance was conducted on the scores of the Trip women (Trip 1 and Trip 2) at T3. When 1, and 1 and 2 are correct there was no significant difference except on the mean scores on the "sows" ($F = 4.95$, $df = 1$, $p < 0.0430$ and $F = 4.71$, $df = 1$, $p < 0.0477$). When 1 and 3 are correct there was no significant difference ($p < 0.05$) on any part or total (see Table 10).

Final Mean Scores Trip 2 Women to No Trip Women

An analysis of variance was made to examine differences between the final scores of the Trip 2 women (who went on the trip to the USA after they saw the videotape programs) against the women who did not go on any trip to the USA. When 1 is correct, and 1 and 2 are correct, there were significant differences ($p < 0.05$) between the scores on "breeding", "sows", and the total (see Table 11). When 1 and 3 are correct, only the "breeding" and total scores were significantly different ($p < 0.05$ [see Table 11]). The trip women had the highest mean scores for all parts and total scores.

Women Who Have or Had Pigs Compared to Women Who Have Not Had Pigs

There was no significant difference ($p < 0.05$) between the initial knowledge scores of women who currently keep pigs against those who do not presently keep pigs. Neither was there any significant difference ($p < 0.05$) between women who had kept pigs against those who previously did not keep pigs, nor between women who had kept pigs at some time against women who have never kept pigs (see Table 12). An analysis of variance

Table 10

Signicance Levels on Comparison of Mean Scores on Questionnaire at Time 3, for Trip 1 and 2, when One is Correct

Trip	N	Breeding	Sows	Piglets	Total
Trip 1	8	6.875 A	8.000 A	10.625 A	25.500 A
Trip 2	8	7.250 A	9.625 A	10.375 A	27.250 A
MSE		0.884	2.134	1.125	7.534

When One and Two are Correct

Trip	N	Breeding	Sows	Piglets	Total
Trip 1	8	7.250 A	9.125 A	11.500 A	27.875 A
Trip 2	8	7.375 A	10.625 A	10.750 A	28.750 A
MSE		1.241	1.911	1.107	6.455

When One and Three are Correct

Trip	N	Breeding	Sows	Piglets	Total
Trip 1	8	7.125 A	8.500 A	10.875 A	26.500 A
Trip 2	8	7.375 A	9.500 A	10.500 A	27.370 A
MSE		0.625	1.714	0.777	4.421

a. Means indicated by the same letter are not significantly different at the 0.05 probability level.
b. MSE = mean square error.

Table 11

Signicance Levels on Comparison of Mean Scores on Questionnaire at Time 3, for Trip 2 Women and No Trip Women, when One is Correct

Trip	N	Breeding	Sows	Piglets	Total
Trip 0	24	6.000 A	7.875 A	9.083 A	22.958 A
Trip 2	8	7.250 B	9.625 B	10.375 A	27.250 B
MSE		1.717	3.617	4.457	17.015

When One and Two are Correct

Trip	N	Breeding	Sows	Piglets	Total
Trip 0	24	6.125 A	8.583 A	9.875 A	24.583 A
Trip 2	8	7.375 B	10.625 B	10.750 A	28.750 B
MSE		1.883	3.057	4.471	16.711

When One and Three are Correct

Trip	N	Breeding	Sows	Piglets	Total
Trip 0	8	6.208 A	8.458 A	9.542 A	24.208 A
Trip 2	8	7.375 B	9.500 A	10.500 A	27.375 B
MSE		1.994	2.999	3.332	14.994

a. Means indicated by the same letter are not significantly different at the 0.05 probability level.
b. MSE = mean square error.

Table 12

A Comparison of Scores on Questionnaire at Time 1 by Whether or Not Pigs are Kept
Control Group Included

Have	N	Breeding	Sows	Piglets	Total
No	34	4.088 A	4.382 A	4.971 A	13.441 A
Yes	15	4.533 A	5.467 A	5.067 A	15.067 A
Had					
No	11	3.545 A	4.000 A	3.545 A	11.091 A
Yes	38	4.421 A	4.921 A	5.421 A	14.763 A
Have Had					
No No	7	3.571 A	3.571 A	3.857 A	11.000 A
No Yes	27	4.222 A	4.593 A	5.259 A	14.074 A
Yes No	4	3.500 A	4.750 A	3.000 A	11.250 A
Yes Yes	11	4.909 A	5.727 A	5.818 A	16.454 A
MSE		7.206	6.070	9.771	52.430

a. Means indicated by the same letter are not significantly different at the 0.05 probability level.
b. MSE = mean square error.

was made on the scores with the control group women included and excluded and the results were the same (see Table 12).

The initial scores (at T1) of the control group women who had kept pigs at any time were significantly lower ($p < 0.05$) on all parts and total from the SSLP women, whether or not the SSLP women had ever kept pigs, except for the "sows" part of the questionnaire. SSLP women who had never kept pigs did not have significantly different ($p < 0.05$) initial scores on "sows" from the control group women who did keep pigs (see Table 13).

Literacy

An analysis of variance on total scores by literacy was made. There was no significant difference ($p < 0.05$) in the final score by all the SSLP women with respect to literacy level. There were 19 illiterate women out of 40, equal to 47.5 percent illiteracy (see Appendix D4). The two women who were attending *colegio* (high school) had the lowest total mean score in each part of the questionnaire (see Appendix E). There were no significant differences ($p < 0.05$) in the literacy levels by villages (see Appendix H).

Demographic Information

The largest age brackets, (29.26 percent) were for SSLP women between 31-35 years of age and at ages 26-30 years 14.6 percent. The overall age range was from 16-60 years. At T2, 75.61 percent of the women were living in a permanent relationship with a man, (married or accompanied), 19.51 percent of the women were heads of households (no man who was economically responsible for the household was present). Of 41

Table 13

A Comparison of Scores on Questionnaire at Time 1 by Whether or Not Pigs are Kept

Pig	N	Breeding	Sows	Piglets	Total
Control	9	1.111 A	2.333 A	1.444 A	4.889 A
Never	5	4.800 B	4.600 AB	5.400 B	14.800 B
Some	35	4.943 B	5.343 B	5.857 B	16.142 B
MSE		4.947	4.980	7.255	34.956

a. Means indicated by the same letter are not significantly different at the 0.05 probability level.

b. MSE = mean square error.

c. Control = control group members who have kept pigs at some time
Never = SSLP members who have never kept pigs
Some = SSLP members who have kept pigs at some time

women, 26.8 percent had children under the age of two which they were breast feeding, an additional 7.3 percent were taking care of children under the age of two, which were not theirs. From the total population of SSLP groups, 56.1 percent have at least one child between the ages of three and five, and in 55 percent of the households there is at least one other female over the age of 10 living in the house, who can help with the domestic work (see Appendix D4).

Other Activities

Of 44 women, 77.3 percent are not currently members of any other group in their community, 43.2 percent have never belonged to any group. Of the SSLP women; however, 58.97 percent participate in activities in addition to the work required by the SSLP. Of this percentage, two women (5.1 percent) attend *colegio* (high school), 46.15 percent are engaged in some sort of work to earn money, and 17.95 percent are engaged in more than one economic activity (Appendix D2 see CURRWORK).

Disease

At T1, 97.8 percent of the women answered that pigs should be deparasitized, 38.9 percent said when to deparasitize the pigs and 82.1 percent told why they should be deparasitized (Appendix D). At T2, 100.0 percent of the women answered that pigs should be deparasitized, 47.59 percent answered correctly as to when to deparasitize the pigs and 97.5 percent told why they should be deparasitized (Appendix D).

When asked if they should deparasitize their pigs which are kept at home, 37 women responded positively, and none negatively. Seven women out of 12 routinely deparasitize their own pigs at home (see Table 14).

At T1, 97.7 percent of the women said that pigs should be

vaccinated, 73.2 percent answered that pigs could be vaccinated against cholera, 11.1 percent listed diseases that can not be vaccinated against, 24.4 percent answered correctly when to vaccinate the pigs, 20.0 percent knew that pigs should be vaccinated but did not know when to vaccinate, 13.3 percent responded with one correct time but did not say that the pigs must be vaccinated more than once, and 42.1 percent answered incorrectly or did not know. At T2, 100 percent of the women answered that pigs should be vaccinated, 95.0 percent answered that pigs could be vaccinated against cholera, 5.0 percent listed diseases that can not be vaccinated against, 25.0 percent answered correctly when to vaccinate the pigs, 37.5 percent knew that pigs should be vaccinated but did not know when to vaccinate, 12.5 percent responded with one correct time but did not say that the pigs must be vaccinated more than once, and 25.0 percent answered incorrectly or did not know (see Appendix D).

When asked if they should vaccinate their pigs which are kept at home, 36 women answered yes. Only 7 women out of 12 who keep pigs, however, have actually vaccinated their pigs (see Table 14).

SSLP women (29.6 percent) had experience with pig cholera, and 68.9 percent were aware of pig cholera by name (see Appendix D).

Practices with Pure Bred Pigs

The women in Laureles and Jutosa were told (before T1) that they should not let a pregnant sow wander around outside of the corral because the sow might be hurt. At T1, 55.5 percent of the women said that a pregnant sow should not leave the corral, 31.07 percent said it could leave the corral if she was watched and 13.3 percent said it did not need to be watched (Appendix D). At T2, 65.0 percent said that a pregnant sow should not leave the corral, and 32.5 percent said it could leave the

TABLE 14

Pure Bred Practices with *Criollo* Pigs

	Keep In Corral	Deparasitize	Cut Teeth	Vaccinate
ANSWER				
NO	2	0	11	1
YES	38	37	27	36
DON'T KNOW	0	3	2	3
YES & DO	6	8	4	7

a. Twelve women kept pigs when yes & do question was asked.

corral if she was watched. No one said the sow could leave a corral without being watched. About two months after the questionnaire at T2 was given, a pregnant sow which was due to deliver in six weeks was let out of its corral. It fell into the open biodigester settling tank and drowned.

The SSLP *entrenadora* told the women in Laureles before T1, that they should cut the eye teeth of piglets, so that the piglets would not bite each other or the sow when nursing. At T1, 53.3 percent of the women said that the eye teeth of baby pigs should be cut, 62.2 percent answered correctly as to when it should be done, and 66.7 percent responded correctly as to why it should be done (see Appendix D). At T2, 97.5 percent of the women said that the eye teeth of baby pigs should be cut, 97.5 percent answered correctly as to when it should be done, 2.5 percent knew that the eye teeth should be cut but they were not sure when it should be done, and 100 percent responded correctly as to why it should be done.

When asked if the eye teeth of pigs kept at home should be cut, 27 of the women responded "yes" and 11 "no". Only 4 out of 12 women that keep pigs at home, do cut the eye teeth (see Table 13).

Piglets should be castrated from three days to two weeks of age so that they will fatten more quickly and not suffer from hemorrhage. At T1, 20.0 percent of the women answered correctly as to when to castrate a pig, 28.9 percent knew to castrate a pig but did not know when to castrate it, and 75.6 percent answered correctly as to why pigs should be castrated (see Appendix D). At T2, 70.0 percent of the women answered correctly as to when to castrate a pig, 7.5 percent knew to castrate a pig but did not know when to castrate it, 22.5 percent answered

incorrectly or did not know when to castrate a pig, and 92.5 percent answered correctly as to why pigs should be castrated (see Appendix D).

Of the 32 SSLP women who did not presently keep pigs at home, 43.2 percent said they did not have enough money to keep pigs, 18.2 percent said they did not have enough money to feed a pig (see Appendix D).

At T1, 13 women kept pigs (7 for fattening), and 32 women had no pigs. Thirty-seven women used to keep pigs (17 for fattening). Eight women out of 45 have never kept pigs (see Appendix D).

Chapter 9

ANALYSIS OF DATA

Learned Knowledge

From the results of this study, it is demonstrated that the SSLP women did learn a range of technical points related to various aspects of pig keeping by watching the videotape programs. The study also demonstrated a significant increase in an understanding of the concepts behind the points on pig care. The women learned the rationale behind handling pigs in certain ways, not just the "correct" answer. The videotape programs provided information on the care of sows and piglets but did not include any information on aspects of breeding pigs. There was a significant increase in the mean of scores at Time 2 (T2) over Time 1 (T1) on questions relating to the knowledge on the care of sows and piglets. By contrast, there was no significant change in the mean of scores on the breeding questions at the same two times. This lack of significance on the latter questions would suggest that overall there were no external factors to the study which were affecting the results of the questionnaire on the basis of outside acquired knowledge during the course of this study.

The individual questionnaire scores demonstrate that all but two out of the 40 SSLP women scored higher on the questionnaire at T2 than at T1. Of the two non-learner women, one had a very high score on the initial questionnaire which did not significantly change at the second time, and the other woman is sixteen years old, in school and the daughter of one of the SSLP women. Her sister, also in the same SSLP group, did not participate in the study because she was never available.

As a result of the videotape programs, the women in Caraos, Jutosa and Jardines significantly increased their knowledge on technical aspects of pig keeping relating to sow and piglet care. The groups from these three villages did not differ significantly, between groups, in the amount of knowledge that they acquired. The women from these three villages, Caraos, Jutosa and Jardines, learned significantly more from the videotape programs than the women in Laureles.

The Laureles women learned significantly more about sows from the videotape programs than they had previously known but their initial knowledge about pigs, in all areas, was much higher than the women in other SSLP groups. Since members of the Laureles group scored very high on the initial questionnaire, the change between T1 and T2 was not generally significant, particularly if the answer was scored correct if the women understood the concept of the question (mean total score at T1 where 1 and 2 of 32, mean total score at T2 = 28.0 out of 32).

Initial Knowledge

The women in Laureles initially knew significantly more (when 1 is correct) about all aspects of pig keeping than the women in the three other villages. This higher level of knowledge was probably accounted for by several factors (see Chapter 6). The Laureles women had received more technical training from the SSLP staff than any other village and had the most experience with handling project pigs, sows, and piglets. Two of the women had extensive experience handling pigs in commercially owned pig farms before they joined the SSLP and the husband of one of these women was the manager of a commercially owned pig farm in the same community at the time of this study. He would often help the women and

advise them on problems. There are four commercially owned pig farms in the Laureles community. There are no commercial pig farms in any of the other communities.

The Jutosa women had received only one of the three seminars given in Laureles, the one on pig breeding, from the same *entrenadora* prior to taking the questionnaire. They had kept sows for three months and had had an unfortunate accident with two of their three original sows. They had no experience with piglets. The women in Jutosa were the least cohesive group. They had difficulty working together and had several women with strong personalities.

The Caraos women had received no seminars or specific information on pig care prior to the questionnaire. They purchased their first pigs two weeks before the questionnaire was given, thus their interest in learning may have been higher than in the other groups which either did not have any pigs, or had kept pigs for several months.

Women in Jardines were still constructing their pig farm when this study was completed. They received no seminars or technical information from the SSLP. Two of the SSLP women had been involved with a FAO pig project two years ago, but all of the pigs in the village, including the project pigs, had died of cholera within three months. The women were told that the FAO project pigs had been vaccinated against cholera (see Chapter 6 for more details). Despite the demise of these pigs, all of the women in Jardines at T2 said that pigs should be vaccinated.

The results of this study indicate that there was no significant difference among the initial scores of the women from Caraos, Jutosa and Jardines. Women from Jardines at T1, did not know anything more about keeping pigs than women in Caraos or Jutosa, despite the previous presence of the FAO SSLP. This may be a result of the two projects using

different methods in handling the pigs, although FAO had also used imported pure bred pigs. It seems more likely that because the FAO project had been so unsuccessful and so short, the women learned little from the project regarding the care of pigs.

In order to determine if there were additional factors in Laureles which might affect the level of pig knowledge in the community, a control group was randomly selected from Laureles and given the same knowledge questionnaire at T1. The scores, by part and total, are significantly lower for the control group compared to the women in the Laureles SSLP group. Women in Laureles did not therefore learn about pig keeping just from living in the village.

All of the SSLP groups knew significantly more about keeping pure bred pigs than the control group. The women from Laureles scored significantly higher on the questionnaire at T1 than the other SSLP groups and they scored significantly higher than the control group at T1 on every part and the total score. Although the women in Caraos and Jardines had received no specific information regarding technical aspects of pig keeping from the SSLP, they still knew more than the control group. The difference in their initial knowledge to that of the control group's knowledge must be due, at least in part, to the fact that they have gained some knowledge as a result of being members of the OEF Pig Project.

Combination Effect of Videotape Programs with Trip to USA

There was no significant difference in the final scores on the questionnaire, by part and total, between the women who saw the videotape programs and then went to the USA (Trip 2 women) and the women who went

to the USA and then saw the videotape programs (Trip 1 women). Although the difference in final scores was not significantly different, the group which saw the videotape programs before the trip scored a higher mean score, by all parts and total, on the questionnaire. This difference may indicate that the videotape programs were a stimulus for learning. The Trip 2 group, however, may have learned more because they received some "hands on" experience in working with piglets, and some of the recommendations that had been made at the end of the first trip were heeded during the second trip.

Knowledge Gained on Trip

The results show that the women who went to the USA after watching the videotape programs, (Trip 2) learned significantly more about breeding pigs and the care of sows than the women who did not go (when 1, and 1 and 2 are correct). If the scores are compared when 1 and 3 are correct (i.e., the women who learned the answer by rote are scored as answering correctly), there is no significant difference between the two groups on "sows" or "piglets". There is also no significant difference between the two groups with regard to their knowledge about piglets (when 1 is correct and 1 and 2 are correct). The women who watched the videotape programs and did not go to the USA, learned as much about piglets by watching the videotape programs as the women who watched the programs and then went on the trip. If the purpose of the trip was to provide technical training to the RSW, as the women were told, it did not increase the knowledge of the Trip women on care of piglets.

To Have or Not to Have Pigs

The initial knowledge level among women in SSLP groups does not differ significantly according to whether or not a woman keeps or has previously kept pigs. Perhaps this is true because the methods involved in keeping pure bred pigs in pig farms are substantially different from the traditional way of keeping pigs.

The SSLP women who had never kept pigs of their own scored significantly higher on the initial knowledge questionnaire on breeding and piglets, than the control women who kept pigs. There was no significant difference between the two groups regarding knowledge on sows, although the SSLP women had a higher mean score. Whether or not a woman has had experience keeping pigs in the traditional manner does not mean that she knows more, or less, about keeping pure bred pigs in a pig farm.

Literacy

Literacy is not a determining factor in how much a SSLP woman can learn from videotape programs. There was no significant difference in the final scores between women who could read and write and those who could not (47.5 percent). Although five women had been to school (two to first grade and three to second or third grade), they considered themselves functionally illiterate. (The fact that a person can graduate from third grade in Honduras and still not read or write should be considered when devising questionnaire forms which cover literacy.) Only 20 percent of the women in the SSLP groups have been beyond the first grade or received adult education.

Demographic Information

Almost 20 percent of the SSLP women are heads of household which compares to a 21.6 percent national average (USAID, 1981). Young children and infants do not seem to be a deterrent to women participating in the SSLP. Over 50 percent of the SSLP women have young children and 27 percent were breast feeding at T2. Since only 55 percent of the women have another woman (over the age of ten) in the household to help with the domestic work, whether or not there is an older female to take care of the house and household does not seem to be a factor in the decision of a woman to join the SSLP.

The women who participate in the SSLP seem to be economically active women. Of the total, 46 percent of the women in the SSLP are engaged in some sort of work to earn money, in addition to the work required by the SSLP. These additional sources of income include sewing, washing and ironing, selling fruits and vegetables, baking and selling bread, making food items for sale, midwifery, and agricultural work (Appendix D). Seven women were engaged in more than one of these activities, as well as, the SSLP work. The women normally spent at least fourteen hours per week on SSLP activities, which included 1) cleaning the pig corrals twice a day, 2) watering and feeding the pigs, 3) purchasing food and supplies, and 4) attending meetings (at least three hours per week). In Jutosa and Laureles where they were running farrowing units, the work also included the following: 1) tending to the birth of pig litters, 2) cutting the tails and teeth of piglets, 3) castrating the piglets, 4) injecting the piglets with iron twice and giving them vitamins. At the end of this study, Laureles had approximately 16 sows, one boar and 30 piglets.

Disease

One hundred percent of the women (at T2) stated the importance of deparasitizing and vaccinating pigs, but a large percentage of them could not remember when to deparastitize (61.1) or to vaccinate (75.0) the pigs. This is an excellent example of learning by rote. The women had been told they must deparasitize and vaccinate their pigs but most of the women did not fully understand against which diseases they could vaccinate, or when they should vaccinate. This deficiency demonstrates the value of using a questionnaire where one has the opportunity to examine the extent of understanding the concept of an answer as well as the answer itself.

Practices with Pure Bred Pigs vs. *Criollo* Pigs

Pure bred pigs (originally imported from the USA or Europe), such as those being used by the SSLP are very different to the *criollo* native domesticated pig. The former are much more susceptible to certain diseases, much less tolerant of the tropical climate, require a great deal of water, and must be fed concentrate if they are to fatten to sufficient market size in six months. When pig keeping practices for the project's pure bred pigs differ from traditional methods practiced with the *criollo* pig, there seems to be an almost complete acceptance by the SSLP women, at least at a conceptual level, that these pigs "are different" and must be cared for in a different way. Project women do transfer some of the practices with pure bred pigs to their own *criollo* pigs, at least in theory. Over 90 percent of the women said that one should keep pregnant *criollo* pigs in a corral and also deparasitize and vaccinate such pigs. Of the 12 women who were keeping pigs at the time

of the questionnaire, many had not deparasitized or vaccinated their pig because they did not have the money to do so. As to whether they should cut the eye teeth of *criollo* pigs, 27.5 percent of the women said "no" because the *criollo* was "a different type of pig".

The SSLP women have a very humanistic, as opposed to commercial, attitude towards the pigs. When the women were originally asked how much a piglet should weigh at birth in order to keep it, the women did not understand the question. Out of some 25 women, all of them said that the piglet should not be destroyed no matter what its weight. If a sow produces more piglets than she has teats, the women nurse the extra piglets by bottle. When asked if a pregnant pig (pure bred) could leave her corral, 32.5 percent at T2 said "yes, if she is watched", many went on to explain that the pig would become bored with the corral and that the pig enjoyed foraging and munching on grass. This attitude must be respected and taken into account when teaching the women aspects of pig husbandry and pig farm management.

Chapter 10

THEORETICAL AND PRACTICAL LIMITATIONS TO THE STUDY

Proposed Use of the Portable Video System

The proposed study originally included the following objectives: 1) to use videotape programs to introduce the new system of pig rearing, 2) to test the use of locally made videotape programs as a horizontal communication tool, and 3) to help train *promotores*, Honduran personnel who had been trained to work within the project at the rural community level and who themselves were from such villages. After consultation with the Project Director in-country, it was agreed that 1) the videotape programs would not be used to introduce the project's new system of pig keeping and rearing because the project's present methodology has proven very successful, 2) the members of the SSLP would not be used as "actors" within the videotape programs nor the project's pig farms be used as a site for videotaping, 3) I would not use the videotape system to help train the *promotores*, since there was only one currently working with the SSLP and she was employed by Horizontes de Amistad, and 4) the OEF staff would not participate or collaborate in the production of the videotape programs due to limited staff and time constraints.

Participatory Communication

The proposal for this research study described the use of a portable video system in an ongoing development project as a form of participatory communication on a micro level. Originally, this research study proposed to use the women from one of the SSLP groups as "actors" in the videotape programs. These programs would have taught technical aspects of keeping

pure bred pigs and would have been shown to the other SSLP groups thus integrating the concept of participatory communication into the SSLP. This form of participatory communication involves the transfer of technical information among like groups. Since the women who are making the videotape programs are actually part of the "target audience" such project objectives as identification of needs, concretizing problems, feedback, relevancy of videotape programs, and interest of the target audience in learning technical aspects of pig keeping should have been much easier to meet. Such videotape programs would have provided a means for horizontal communication among members of the SSLP groups.

As the results of this study show there was a great difference in the initial knowledge level with one group, Laureles, demonstrating a very high level. I intended that the women from this group, who had received the most technical training and had the most experience with pure bred pigs would work with me to produce a series of videotape programs on pig care.

These programs would have been made with the advice and support of the technical trainers of the SSLP, but the rural subsistence women themselves would have been the "actors" on the videotape programs. By teaching others how to care for pregnant pigs and piglets, and through involvement in the process of communication and the making of the videotape programs, the "actors" would have gained more technical expertise and self-confidence. Consequently, this form of participatory communication would have benefited all members of the SSLP groups.

People enjoy seeing themselves, friends or people similar to themselves on the video monitor. The interest level and subsequent learning level is much higher in such cases than when a videotape program

depicts events or circumstances or people unfamiliar to the viewers. This is the basis for making videotape programs in the field under conditions similar to those encountered by the target audience.

I videotaped the Laureles women, who willingly collaborated with me, injecting new born piglets with iron. The *entrenadora* for the group collaborated in the making of the videotape and helped the women to correctly inject the piglets. There were two problems which I encountered in working with the Laureles women. None of the women had a much experience in injecting piglets. Thus, their techniques were not always the best or sometimes not even technically correct. They needed a technical expert (*entrenadora*) to work with them and to show them and advise them how to do it correctly for the camera. Yet, at the same time, the technical expert could greatly inhibit the RSW if they thought the expert was being critical. Most of the RSW in these groups have never been asked to explain something to someone else of a higher economic and social class. I believe that many of the RSW are capable of doing this, but they require the support, patience and encouragement of the technical expert and the person making the videotape. In this case, they had our full support and they realized it. I believe that I could have made all of the videotape programs with the women from Laureles and their *entrenadora* if the Project Director had been in agreement.

I showed the unedited tape to the Project Director. After viewing the videotape, she asked me to not use the footage which I had taped nor to make any subsequent videotapes with any of the SSLP groups. The reason given was that such videotapes would make members of other groups jealous, because they were not on videotape as well. I did not feel that this was the case and I believe that I could have made videotape programs with the women from Laureles which would have been effective in training

other RSW in technical aspects of pig keeping without creating jealousies among the groups. These programs, however, would have been impossible to make without the consent, help and time of the *entrenadores* (technical staff) of the SSLP. I needed their collaboration and assistance during the videotaping to make sure that the technical information was accurate. Besides their direct collaboration, an attitude change on the part of some of the OEF staff would have been necessary. For these programs to have been successful, there would have had to been an acceptance on the part of the Project Director and staff that technical information could in fact be transferred horizontally by the RSW and need not follow the traditional channels of vertical hierarchy where technical information is conveyed only by project staff. Since these were not forthcoming, and the Project Director specifically asked me to not make tapes with members from the SSLP groups, I was not able to measure the effectiveness of using a portable video system as a horizontal communication tool or as a communication exchange method among the SSLP groups. . . .

Training SSLP Personnel in the Use of Video Equipment

During the course of this study, one Peace Corps volunteer and both *entrenadores* accompanied 16 of the women from the SSLP groups to the United States for two weeks. This trip was funded by a Peace Scholarship through AID. Also, one of the two Horizontes *promotores* was dismissed and replaced by a different individual. Due to this trip, the staff's work schedule and the limited number of staff and *promotores*, it was not possible to train *promotores* or staff in technical aspects of pig keeping by means of videotape programs or train them in the operation of the video equipment. Although I did not have the opportunity to do so, based on previous experience in El Salvador where I conducted workshops on the

operation and utilization of portable video systems, I believe that I could have taught members of the OEF Project staff and members of the SSLP groups how to operate the video equipment such that they could have made simple videotape programs.

Chapter 11

CONCLUSIONS

Theoretical Perspective

This study involved the use of a portable video system as a tool to transfer technological information about pig husbandry to rural subsistence women (RSW) in the Small-Scale Livestock Project (SSLP) in Honduras. This AID funded project seeks to raise the standard of living of these women who are part of a large marginal group, by providing them with the technical advice and financial assistance necessary to commercially produce and market pigs. The SSLP is a small-scale regional project but if it proves successful, it may be expanded to a national program. Hopefully that means that it will be an integrated series of small-scale projects operating on regional bases and not a national project administered from one central office. As a small-scale development project its potential for success is much greater because it does not have to strive for social and economic change on a national scale, but can help to integrate RSW into the agro-business economic sector one cooperative group at a time. Although the SSLP is small and the staff work closely with the RSW in the cooperative groups, the only mechanism for the RSW to input into the decision-making processes of the project or to give feedback to the project is by talking to the staff and particularly to the *entrenadoras*. This method is limited to the sensitivity of the *entrenadora* to the women and is subject to censorship. If a development program is to genuinely help its target population, there must be a method whereby the target population can input directly into the project.

The classical communication model should be changed to a two-way communication model, including vertically upwards communication from the target populations to project staff and administrators, national government ministries and planners, and horizontal communication among the target population themselves and among similar socio-economic and cultural groups. Portable video systems are one mechanism for such communication and a tool which can be used not only by development project staff but by target populations as well. Through such communication strategies, marginal groups may indeed be able to become involved in the social, economic and political processes on a local, regional, and national scale. This can only occur, however, if the governments of third world countries 1) control technological development, 2) evaluate the long term as well as the short term results of such development, and 3) accept such development programs only when they benefit the populace of the country, not when they are primarily for the benefit of special interest groups or for the donor country.

The world in which we are living is becoming increasingly smaller as the technological means for communicating become more numerous. The ability to communicate and understand each other, however, seems to lag behind. Through communication media we have been offered ways in which to communicate, now we must learn **how** to communicate.

Results of the Study

Locally Made Videotape Programs are an Effective Medium

The results of this study strongly suggest that videotape programs, which are made in the field under conditions similar to those encountered by the viewer, and which present technical points in a clear and simple

manner are very effective in teaching certain practical, technical aspects of pig husbandry to rural subsistence people under the conditions of this study.

When a person can not read or write, he/she must rely upon memory and visual or verbal confirmation of facts. Videotape programs which depict the reality of the viewer can provide a very interesting and dramatic way of presenting technical information. Consequently, the learning retention of the viewer of videotape programs may prove to be longer than when the same technical information is introduced through other media or given verbally. Such a conclusion, however, is beyond the scope of this study. It is interesting to note, though, that when the SSLP women were answering the questionnaire at T2, after the women had viewed the videotape programs, they mentioned a fact in the same terminology as was given in the videotape program 66 times. When answering a question on the gestation period of a sow, 19 women out of 32 responded with "three months, three weeks, three days" (the exact phrase used in the videotape program). The videotape programs suggested that lime be mixed with disinfectant and painted on the walls of the corral into which a pregnant sow was to be moved so that one could see if any part of the wall had not been covered. This suggestion had not been made by the SSLP before the videotape programs, nor after. Two weeks after viewing the videotape programs the women in Caraos and Laureles met independently and decided that they would put lime in the disinfectant. One month after viewing the videotape programs, it was reported that the women in Jutosa and Laureles were cutting the tails of the piglets to prevent cannabalism. A practice which was introduced in the videotape programs, independent of SSLP recommendations.

Although only 20 percent of the SSLP group women completed more than

first grade in formal education, the women proved that they were very capable of learning technical aspects of keeping pure bred pigs when the information was presented to them in a clear, practical and direct way. In two villages the SSLP women initially knew nothing about keeping pure bred pigs. This was not due to any cultural, social, or psychological reasons. It was simply a result of not having received any information. As the results of this study demonstrate, once the women were given the technical information in a form to which they could relate, they learned a great deal from it.

The SSLP is introducing new breeds of pigs and a different system of keeping, handling, and managing pigs. The results suggest that the SSLP women have accepted and are practicing this new system, even where it conflicts with traditional pig-raising practices. Some of the women are purchasing the pure bred pigs to raise at home. Most of the women who keep their own pigs, whether *criollo* or pure bred, believe, at least conceptually, in extending the practices they are learning through the SSLP in the pig farm to their own pigs at home. The greatest limiting factor in extending these practices is that the women do not have enough money to buy the vaccinations, medicine or pincers which are necessary.

The Use of a Portable Video System in the SSLP

Since the videotape programs have been shown here to be an effective method in transferring technical information on pig keeping, they could be used as a supplement to the technical talks given by the OEF project staff. They could also be used by staff or *promotores* who have not been trained in the more technical aspects of pig keeping, thus obviating the need for a "technical expert" to always be present.

Additionally, the videotape programs could be used directly by the rural subsistence women (RSW) themselves to learn something which they may have missed or not understood, to refresh their memory, or to review facts or procedures. Since the transfer of technical information on pig keeping and pig farm management is considered critical to the ability of the SSLP RSW women to operate and manage pig farms successfully and integrate themselves into the agro-economic sector, the use of videotape programs to accomplish this transfer is significant. This method of technical transfer could also be applied to other development projects with a high probability of success.

Although beyond the scope of this study, a portable video system, if integrated into the SSLP, could be used in numerous ways. As groups became more experienced in the handling of pigs and proficient in pig care and pig farm management, they could teach particular techniques or aspects of pig care to other groups. In addition to providing specific technological information, the portable video system could be used in many other ways including 1) to promote a communication exchange among the groups where the groups shared problems and solutions, 2) to communicate with project staff, administrators, AID Mission personnel, Honduran Ministry personnel and other persons interested in the project, and 3) to videotape group meetings and discussions and to utilize the playback of these to discuss group dynamics and problems within the groups. The use of a portable video system in the training of RSW has proven very successful within this pilot project. There are also many other possible uses for a portable video system in a project such as the SSLP. Unfortunately, the SSLP does not now have access to a video system. It is hoped that they may be able to acquire such a system or

borrow one from time to time so that at least the videotape programs which they presently have could be used.

Needs of the Target Population

It is a common feature of many development projects for the project planners, administrators and staff to define the "needs" of the target population for whom the development project is designed, without any real input from the target population itself. The SSLP is no exception. The RSW of the project were not even consulted as to whether they would like to raise pigs, as opposed to chickens, goats, etc. One can argue that project planners and administrators are more capable and have a more "global perspective" and can more often make the correct decision about target population needs, but the results of this study suggest that this is not always so.

At the outset of this study, there was a reluctance on the part of the OEF staff to give the women technical information until they actually started working with the pigs. There was also a reluctance to tell the women any more than they needed to know at any one time. The results of this study suggest that the RSW in SSLP groups should be given technical training on pig care as soon as possible, regardless of whether they were actually keeping pigs at that time.

There often exists a condescending attitude on the part of project planners and personnel with regards to the target population (by definition from a lower social and economic class than project administrators and staff) which implies that the latter are incapable of absorbing and learning technical information except as the administrators deem fit. One way to avoid the situation where project administrators

and staff are defining the "needs" of the target population, is for the project to incorporate some mechanism whereby the target population can communicate their felt needs and make inputs to project decisions. One such mechanism could be the use of a portable video system where members of the target population are recorded expressing their needs, just talking or answering questions. Such a videotape could then be viewed by project staff and administrators and their reply could also be recorded and taken back to the target population. Of course it would be better to have this two-way communication directly between people but most development projects are unable to do so because of time, transport, and personnel constraints.

The SSLP, A Development Project

Before a development project is instituted, it is essential to consider the social, economic, and ecological impact of the project upon its target population to insure that the project is beneficial and not a waste of time, energy, or money, or harmful to the target population or their environments. As was discussed previously, the target populations of many current development programs are from marginal groups on the edge of subsisting, for whom a misguided development project may well have catastrophic results.

One assumes that the SSLP planners and staff have considered and researched a number of factors before they began this project, such as: 1) the marketing aspects to assure that there is, and will continue to be, a market which can handle the increased pig production in the area without a concomitant drop in market price, 2) the ability of the cooperative groups to purchase or have access to transportation for

taking their pigs to market in three years time, 3) a mechanism whereby the women (and not their husbands) will be able to remain in control of the pig farm and its profits, when the project ends, 4) the disposal and/or utilization of pig effluent and overspill and the effect of pig waste on the environment, particularly with regard to contamination of the local water supply, 5) the water needs of the pig farm and whether or not it can be met without detrimental effect to other persons or concerns within the same village, 6) the availability and current and future cost of concentrate (which may be imported) which is fed to the pigs, 7) an awareness of how locally grown crops may be added to the pig feed and the constraints of using such a mixture, and 8) the availability of technical advice and veterinary care when the project involvement with the groups terminates in the next two years. Such considerations and resolutions to potential problems are essential if the SSLP is to bring about a long term change in the lives of the RSW. All development projects face similar concrete concerns which must be resolved within a framework of responsible action and an acknowledgement of social, cultural, and ecological impacts.

Although this document has been critical in some areas of the SSLP, this was done with the intent of helping project staff identify problem areas so that they may be corrected, and with the knowledge that every development project faces similar problem areas. I firmly believe that the SSLP is providing an opportunity for the RSW through its cooperative groups to improve their living conditions and status in the community and marketplace, through the economic gain which will come from selling pigs. It is one of the most successful development projects that I have heard about or with which I have personally been in contact.

Portable Video System

This research study was an adjunct to an ongoing project. To test the use of a portable video system, it would be necessary to incorporate and integrate the use of such a system from the project proposal stage onwards. To integrate the use of a portable video system in a development project the following commitments must be made: 1) time on the part of the project staff to collaborate in the production of programs, 2) time for staff to be trained in the operation and utilization of the equipment, 3) time and resources devoted to the production of programs and the utilization of such programs, 4) local facilities available for the maintenance and repair of the equipment, and 5) an advisor proficient in the use of portable video equipment and the production of programs, who could work with the staff from six weeks to three months to train them in the production of programs and the operation and utilization of the video system.

Portable video systems could also be used as an effective horizontal communication tool among like socio-economic groups and as a vertically upwards (from target populations to project staff and administrators) communication tool. If a study were made to test this assumption, there would need to be additional commitments to those components mentioned above, on the part of the development project: 1) time and project resources would need to be made available for the target population to learn how to operate and use the equipment, 2) the target population would need access to the equipment on a regular basis, 3) there must be an acceptance on the part of project personnel that members of the target audience are capable of effectively transferring technical information, and 4) project administrators and staff must believe that technical

training and transfer of information can be accomplished through horizontal and upwards vertical communication as opposed to the traditional downward hierarchical transfer. For the concept of horizontal communication to be practically applied to teaching technical aspects within a development project, it would also be necessary to have members of the target population with sufficient experience and knowledge of technical skills and ability to convey such skills to others. Although it was not possible to use a portable video system as a horizontal communication tool within this particular project, the concept of such use as a form of participatory communication should be explored in other development projects.

Additional studies should be made to determine the extent to which portable video systems could be effectively integrated and utilized in development projects. Where development projects are working specifically with marginal groups which are primarily illiterate, locally made videotape programs may prove to be one of the most effective and cost efficient methods of providing information and training to the target population.

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APPENDIX A

Questionnaire Forms Used in the Study

Appendix A1

Encuesta de Manejo #1

Questionnaire Given to SSLP Study Population at Time 1

ABWLE1 210. Hay problemas para guardar un veraco con lechones?
(Will there be problems if you put a boar in the same corral with piglets?)

ABWLE2 211. Que son?
(What are the problems?)

ACFMT 212. Cuándo está lista la cerda para que la monten la primera vez?
(When is a sow ready to be mounted the first time?)

AAPMOUNT 213. Despues del parto cuándo la cerda madre puede montarse otra vez?
(When can a sow be mounted after she has had a litter?)

AYBOARM1 214. Si el macho es muy joven, cuánto veces puede montar por dia?
(If the male is very young, how many times a day can it mount a female?)

AYBOARM2 215. Puede montar todos los días?
(Can it mount every day?)

AABOARM1 216. Hay una diferéncia con el macho adulto - puede montar cuanto veces cada día?
(Is there a difference with an adult male, how many times a day can it mount a female?)

AABOARM2 217. El veraco adulto debe descansar?
(An adult boar needs to rest [from mounting]?)

ABOARWC 218. Por qué no guardar el veraco con la cerda cuando está prenada?
(Why don't you keep a boar with a sow when she is pregnant?)

ACPDATE 219. Cómo calcular la fecha posible del parto?
(How do you calculate the delivery date?)

ACOMEC 220. Qué come la cerda cuando está prenada, la misma cantidad que antes?
(Does a sow eat the same quantity of food when she is pregnant as she did before [she was pregnant]?)

ACAFUERA 221. Cuándo la cerda está prenada puede andar afuera del corral?

(When a sow is pregnant should she walk around outside the corral?)

ACUIDELA 222. (If yes) Hay que cuidarla?
(If yes, must you watch her while she is out?)

AMOVECCN 223. Por qué mueve la cerda a un corral nuevo antes del parto?
(Why do you move a sow to a new corral before she gives birth?)

AWHENDES 224. Cuándo debe desinfectar la sala de paricion?
(When should you disinfect the birthing corral?)

ACOMODES 225. Cómo hacerlo, que usa?
(How do you disinfect it, what do you use?)

ADESPARA 226. Es necesário desparasitar la cerda (y los lechones)?
(Is it necessary to deparasitze the sow [and the piglets]?)

AWHENPAR 227. Cuándo lo hace?
(When should you do it?)

AWHYPAR 228. Porqué lo hace?
(Why should you do it?)

ACFOODB 229. Debe dar la cerda alimentación immediatemente antes del parto?
(Should you give a sow food right before she delivers?)

ACNEARB 230. Qué son las características de una cerda cuándo está próxima a parir?
(What are the characteristics of a sow when she is near delivery?)

ALWHENB 231. Qué hace con los lechones cuándo están nacido?
(What do you do with the piglets when they are born?)

ADELETE 232. Cómo desinfectar los lechones, porqué?
(How do you disinfect the piglets, and why?)

ALITEETH 233. Qué hace con los colmillos de lechones?
(What do you do with the eye teeth of the piglets?)

AWHENCOL 234. Cuándo?
(When do you do it?)

AWHYCOL 235. Porqué?
(Why do you do it?)

AHEATL 237. Cómo pueda suplimentar el calor de la madre a los lechones?
(How can you supplement the mother's heat to the piglets?)

AWHYHEAT 238. Por qué lo hace?
(Why do you do it?)

AIRONL 239. Cuándo se da hierro a los lechones?
(When do you give iron to the piglets?)

AWHENCAS 240. Cuándo castrar (capar) los machos?
(When do you castrate the males?)

AWHYCAS 241. Por qué?
(Why do you castrate them?)

ACCARAC 242. Que son las características de una cerda buena para cria?
(What are the characteristics of a sow who will give good litters?)

APATAS 243. Las patas de una cerda son importante (debe ser buenas)?
(Are the feet of a sow important?)

ARAZAS 244. Cuáles son las razas de cerdos?
(What are the different breeds of pigs?)

AWHATENF 245. Qué son las enfermedades de cerdos lo mas importante?
(What are the most important pig diseases?)

AEXPEREN 246. Tiene experiénceia con alguna enfermedad?
(Do you have experience with some pig disease?)

AWHICHEN 247. Cuáles?
(Which?)

AVACUNAR 248. Es necesário vacunar sus cerdos?
(Is it necessary to vaccinate your pigs?)

AWHATVAC 249. Contra cuáles enfermedades?
(Against which diseases can you vaccinate?)

AWHENVAC 250. Cuándo debe vacunarlos?
(When should you vaccinate your pigs?)

HAVEPIGS 251. Tiene cerdos?
(Do you keep pigs [at home]?)

NUMBPIG 252. Cuántos?

(How many?)

HOWLONG 253. Por cuánto tiempo?
(How long have you kept them?)

HADPIGS 254. Tenía cerdos?
(Did you previously keep pigs?)

LONGAGO 255. Hace cuándo?
(How long ago did you keep pigs?)

WHATTIME 256. Por cuánto tiempo?
(For what period of time did you keep them?)

WHYNOTNW 257. Por qué no tiene ahora?
(Why don't you keep them now?)

WHENPPG 258. Por cuánto tiempo pertenece al grupo de proyecto porcino?
(How long have you been a member of the SSLP group?)

OGROUPS 259. Está en otro grupos?
(Are you a member of other groups?)

PASTGROU 260. Estaba?
(Were you a member?)

PIENSAPP 261. Que piensa en éste sistema de producción de cerdos (proyecto)?
(What do you think about the project's way of keeping pigs?)

READOWR 262. Puede leer o escribir? Cumplió cuál grado?
(Can you read or write? What grade of school did you complete?)

Appendix A2

Encuesta de Manejo #2

Questionnaire Given to SSLP Study Population at Time 2

BBWLE1	210.	Hay problemas para guardar un veraco con lechones? (Will there be problems if you put a boar in the same corral with piglets?)
BBWLE2	211.	Que son? (What are the problems?)
BCFMT	212.	Cuándo está lista la cerda para que la monten la primera vez? (When is a sow ready to be mounted the first time?)
BAPMOUNT	213.	Despues del parto cuándo la cerda madre puede montarse otra vez? (When can a sow be mounted after she has had a litter?)
BYBOARM1	214.	Si el macho es muy joven, cuánto veces puede montar por día? (If the male is very young, how many times a day can it mount a female?)
BYBOARM2	215.	Puede montar todos los días? (Can it mount every day?)
BABOARM1	216.	Hay una diferéncia con el macho adulto - puede montar cuanto veces cada día? (Is there a difference with an adult male, how many times a day can it mount a female?)
BABOARM2	217.	El veraco adulto debe descansar? (An adult boar needs to rest [from mounting]?)
BBOARWC	218.	Por que no guardar el veraco con la cerda cuando está prenada? (Why don't you keep a boar with a sow when she is pregnant?)
BCPDATE	219.	Cómo calcular la fecha posible del parto? (How do you calculate the delivery date?)
BCOMEC	220.	Qué come la cerda cuando está prenada, la misma cantidad que antes? (Does a sow eat the same quantity of food when she is pregnant as she did before [she was pregnant]?)

BAFUERA 221. Cuándo la cerda está prenada puede andar afuera del corral?

(When a sow is pregnant should she walk around outside the corral?)

BCUIDELA 222. (If yes) Hay que cuidarla?
(If yes, must you watch her while she is out?)

BMOVECCN 223. Por qué mueve la cerda a un corral nuevo antes del parto?
(Why do you move a sow to a new corral before she gives birth?)

BWHENDES 224. Cuándo debe desinfectar la sala de parición?
(When should you disinfect the birthing corral?)

BCOMODES 225. Cómo hacerlo, que usa?
(How do you disinfect it, what do you use?)

BDESPARA 226. Es necesário desparasitar la cerda (y los lechones)?
(Is it necessary to deparasitze the sow [and the piglets]?)

BWHENPAR 227. Cuándo lo hace?
(When should you do it?)

BWHYPAR 228. Porqué lo hace?
(Why should you do it?)

BCFOODB 229. Debe dar la cerda alimentación immediatemente antes del parto?
(Should you give a sow food right before she delivers?)

BCNEARB 230. Qué son las características de una cerda cuándo está próxima a parir?
(What are the characteristics of a sow when she is near delivery?)

BLWHENB 231. Qué hace con los lechones cuándo están nacido?
(What do you do with the piglets when they are born?)

BDELETE 232. Cómo desinfectar los lechones, porqué?
(How do you disinfect the piglets, and why?)

BLTEETH 233. Qué hace con los colmillos de lechones?
(What do you do with the eye teeth of the piglets?)

BWHENCOL 234. Cuándo?
(When do you do it?)

BWHYCOL 235. Porqué?
(Why do you do it?)

BHEATL 237. Cómo pueda suplimentar el calor de la madre a los lechones?
(How can you supplement the mother's heat to the piglets?)

BWHYHEAT 238. Por qué lo hace?
(Why do you do it?)

BIRONL 239. Cuándo se da hierro a los lechones?
(When do you give iron to the piglets?)

BWHENCAS 240. Cuándo castrar (capar) los machos?
(When do you castrate the males?)

BWHYCAS 241. Por qué?
(Why do you castrate them?)

BCCARAC 242. Que son las características de una cerda buena para cría?
(What are the characteristics of a sow who will give good litters?)

BPATAS 243. Las patas de una cerda son importante (debe ser buenas)?
(Are the feet of a sow important?)

BRAZAS 244. Cuáles son las razas de cerdos?
(What are the different breeds of pigs?)

BVACUNAR 248. Es necesario vacunar sus cerdos?
(Is it necessary to vaccinate your pigs?)

BWHATVAC 249. Contra cuales enfermedades?
(Against which diseases can you vaccinate?)

BWHENVAC 250. Cuándo debe vacunarlos?
(When should you vaccinate your pigs?)

BCHARLA 281. Ha recibido charlas sobre los cerdos?
(Have you had any talks on pig care?)

BNCHARLA 282. Cuántos, hace cuando?
(How many and when?)

BFOLLETO 283. Ha recibido algunos folletos sobre los cerdos, o información escrito?
(Have you received any brochures or written information on pig care?)

BSFOLLET 284. Cuáles, sobre qué?
(What are they, and what do they talk about?)

BOTRAINF 285. Otra información, de quien?
(Have you received other information, from whom?)

LEARNVID 286. Aprende algo de los programas de video?
(Did you learn something from the videotape programs?)

NOPOINTS 287. Más que todo que aprendio?
(What did you learn?)

BPROBPOR 288. Hay problemas en la porqueriza ahora?
(Are there problems in the pig farm now?)

BPROBGRO 289. Hay problemas en el grupo ahora?
(Are there problems in the group now?)

BLEARNPO 290. Aprende algo de la porqueriza que puede usar con cerdos de la casa?
(Did you learn anything at the pig farm which you can do with your pigs at home?)

BCUTCOL 291. En la porqueriza cortan los colmillos de cerditos. Cree Ud. que es necessario hacer lo mismo con cerdos criollos de la casa?
(At the pig farm you cut the eye teeth of piglets. Do you believe that you should cut the eye teeth of piglets at home?)

BVACUNA 292. Con los cerdos criollos de la casa debe dar vacuna contra colera?
(Should you vaccinate pigs at home against cholera?)

BDEPARA 293. Con los cerdos criollos debe desparasiten ellos?
(Should you deparisitize pigs at home?)

BCCORRAL 294. Con los cerdos criollos debe encerrar la cerda cuando va a parir?
(Should you keep pregnant sows that are raised at home enclosed in a corral?)

BHACE 295. Hace éstas cosas con sus cerdos ahora?
(Do you do these things with your pigs?)

BLEARN 296. Ahora que quiere aprender sobre los cerdos?
(What would you like to learn about pigs now?)

BSUGGEST 297. El proyecto va a empezar en otras comunidades, tiene alguna sugeréncia para el proyecto?
(The project is going to begin in other villages, do you have any suggestions for the project staff?)

Appendix A3

Encuesta De Manejo#3

Questionnaire Given to SSLP Population Who Went to USA

CBWLE1 210. Hay problemas para guardar un veraco con lechones?
(Will there be problems if you put a boar in the same corral with piglets?)

CBWLE2 211. Que son?
(What are the problems?)

CCFMT 212. Cuándo está lista la cerda para que la monten la primera vez?
(When is a sow ready to be mounted the first time?)

CAPMOUNT 213. Despues del parto cuándo la cerda madre puede montarse otra vez?
(When can a sow be mounted after she has had a litter?)

CYBOARM1 214. Si el macho es muy joven, cuánto veces puede montar por día?
(If the male is very young, how many times a day can it mount a female?)

CYBOARM2 215. Puede montar todos los días?
(Can it mount every day?)

CABOARM1 216. Hay una diferéncia con el macho adulto - puede montar cuanto veces cada dia?
(Is there a difference with an adult male, how many times a day can it mount a female?)

CABOARM2 217. El veraco adulto debe descansar?
(An adult boar needs to rest [from mounting]?)

CBOARWC 218. Por qué no guardar el veraco con la cerda cuando está prenada?
(Why don't you keep a boar with a sow when she is pregnant?)

CCPDATE 219. Cómo calcular la fecha posible del parto?
(How do you calculate the delivery date?)

CCOMEC 220. Qué come la cerda cuando está prenada, la misma cantidad que antes?
(Does a sow eat the same quantity of food when she is pregnant as she did before [she was pregnant]?)

CAFUERA 221. Cuándo la cerda está prenada puede andar afuera del corral?

(When a sow is pregnant should she walk around outside the corral?)

CCUIDELA 222. (If yes) Hay que cuidarla?
(If yes, must you watch her while she is out?)

CMOVECCN 223. Por qué mueve la cerda a un corral nuevo antes del parto?
(Why do you move a sow to a new corral before she gives birth?)

CWHENDES 224. Cuándo debe desinfectar la sala de paricion?
(When should you disinfect the birthing corral?)

CCOMODES 225. Cómo hacerlo, que usa?
(How do you disinfect it, what do you use?)

CDESPARA 226. Es necesario desparasitar la cerda (y los lechones)?
(Is it necessary to deparasitze the sow [and the piglets]?)

CWHENPAR 227. Cuándo lo hace?
(When should you do it?)

CWHYPAR 228. Porqué lo hace?
(Why should you do it?)

CCFOODB 229. Debe dar la cerda alimentación immediatemente antes del parto?
(Should you give a sow food right before she delivers?)

CCNEARB 230. Qué son las características de una cerda cuándo está próxima a parir?
(What are the characteristics of a sow when she is near delivery?)

CLWHENB 231. Qué hace con los lechones cuándo están nacido?
(What do you do with the piglets when they are born?)

CDELETE 232. Cómo desinfectar los lechones, porqué?
(How do you disinfect the piglets, and why?)

CLTEETH 233. Qué hace con los colmillos de lechones?
(What do you do with the eye teeth of the piglets?)

CWHENCOL 234. Cuándo?
(When do you do it?)

CWHYCOL 235. Porqué?
(Why do you do it?)

CHEATL 237. Cómo pueda suplimentar el calor de la madre a los lechones?
(How can you supplement the mother's heat to the piglets?)

CWHYHEAT 238. Por qué lo hace?
(Why do you do it?)

CIRONL 239. Cuándo se da hierro a los lechones?
(When do you give iron to the piglets?)

CWHENCAS 240. Cuándo castrar (capar) los machos?
(When do you castrate the males?)

CWHYCAS 241. Por qué?
(Why do you castrate them?)

CCCARAC 242. Que son las características de una cerda buena para cría?
(What are the characterístics of a sow who will give good litters?)

CPATAS 243. Las patas de una cerda son importante (debe ser buenas)?
(Are the feet of a sow important?)

CRAZAS 244. Cuáles son las razas de cerdos?
(What are the different breeds of pigs?)

CVACUNAR 248. Es necesario vacunar sus cerdos?
(Is it necessary to vaccinate your pigs?)

CWHATVAC 249. Contra cuales enfermedades?
(Against which diseases can you vaccinate?)

CWHENVAC 250. Cuándo debe vacunarlos?
(When should you vaccinate your pigs?)

CCHARLA 281. Ha recibido charlas sobre los cerdos? Aquí en Honduras?
(Have you had any talks on pig care? Here in Honduras?)

CNCHARLA 282. Cuántos, hace cuándo?
(How many and when?)

CFOLLETO 283. Ha recibido algunos folletos sobre los cerdos, o información escrito? Aparte del viaje?
(Have you received any brochures or written information on pig care? Besides from the trip?)

CSFOLLET 284. Cuáles, sobre qué?

(What are they, and what do they talk about?)

COTRAINF 285. Otra información, de quién?
(Have you received other information, from whom?)

LEARNTRI 298. Aprende algo sobre los cerdos en los EEUU?
(Did you learn something on pig care from the trip to the USA?)

NOPOINT 299. Más que todo que aprendío?
(What did you learn?)

CPROBPOR 288. Hay problemas en la porqueriza ahora?
(Are there problems in the pig farm now?)

CPROBGRO 289. Hay problemas en el grupo ahora?
(Are there problems in the group now?)

CLEARNPO 290. Aprende algo de la porqueriza que puede usar con cerdos de la casa?
(Did you learn anything at the pig farm which you can do with your pigs at home?)

CCUTCOL 291. En la porqueriza cortan los colmillos de cerditos. Cree Ud. que es necessario hacer lo mismo con cerdos criollos de la casa?
(At the pig farm you cut the eye teeth of piglets. Do you believe that you should cut the eye teeth of piglets at home?)

CVACUNA 292. Con los cerdos criollos de la casa debe dar vacuna contra colera?
(Should you vaccinate pigs at home against cholera?)

CDEPARA 293. Con los cerdos criollos debe desparasiten ellos?
(Should you deparisitize pigs at home?)

CCCORRAL 294. Con los cerdos criollos debe encerrar la cerda cuando va a parir?
(Should you keep pregnant sows that are raised at home enclosed in a corral?)

CHACE 295. Hace éstas cosas con sus cerdos ahora?
(Do you do these things with your pigs?)

CLEARN 296. Ahora que quiere aprender sobre los cerdos?
(What would you like to learn about pigs now?)

CSUGGEST 297. El proyecto va a empezar en otras comunidades, tiene alguna sugeréncia para el proyecto?
(The project is going to begin in other villages, do you have any suggestions for the project staff?)

Appendix A4

Encuesta de Manejo #1

Questionnaire Given to Control Group at Time 1

ABWLE1	210.	Hay problemas para guardar un veraco con lechones? (Will there be problems if you put a boar in the same corral with piglets?)
ABWLE2	211.	Qué son? (What are the problems?)
ACFMT	212.	Cuándo está lista la cerda para que la monten la primera vez? (When is a sow ready to be mounted the first time?)
AAPMOUNT	213.	Despues del parto cuándo la cerda madre puede montarse otra vez? (When can a sow be mounted after she has had a litter?)
AYBOARM1	214.	Si el macho es muy joven, cuánto veces puede montar por día? (If the male is very young, how many times a day can it mount a female?)
AYBOARM2	215.	Puede montar todos los días? (Can it mount every day?)
AABOARM1	216.	Hay una diferéncia con el macho adulto - puede montar cuanto veces cada dia? (Is there a difference with an adult male, how many times a day can it mount a female?)
AABOARM2	217.	El veraco adulto debe descansar? (An adult boar needs to rest [from mounting]?)
ABOARWC	218.	Por qué no guardar el veraco con la cerda cuando esta prenada? (Why don't you keep a boar with a sow when she is pregnant?)
ACPDATE	219.	Cómo calcular la fecha posible del parto? (How do you calculate the delivery date?)
ACOMEC	220.	Qué come la cerda cuándo está prenada, la misma cantidad que antes? (Does a sow eat the same quantity of food when she is pregnant as she did before [she was pregnant]?)

ACAFUERA 221. Cuándo la cerda está prenada puede andar afuera del corral?

(When a sow is pregnant should she walk around outside the corral?)

ACUIDELA 222. (If yes) Hay que cuidarla?
(If yes, must you watch her while she is out?)

AMOVECCN 223. Por qué mueve la cerda a un corral nuevo antes del parto?
(Why do you move a sow to a new corral before she gives birth?)

AWHENDES 224. Cuándo debe desinfectar la sala de paricion?
(When should you disinfect the birthing corral?)

ACOMODES 225. Como hacerlo, que usa?
(How do you disinfect it, what do you use?)

ADESPARA 226. Es necesário desparasitar la cerda (y los lechones)?
(Is it necessary to deparasitze the sow [and the piglets]?)

AWHENPAR 227. Cuándo lo hace?
(When should you do it?)

AWHYPAR 228. Porqué lo hace?
(Why should you do it?)

ACFOODB 229. Debe dar la cerda alimentación immediatemente antes del parto?
(Should you give a sow food right before she delivers?)

ACNEARB 230. Qué son las características de una cerda cuando está próxima a parir?
(What are the characteristics of a sow when she is near delivery?)

ALWHENB 231. Qué hace con los lechones cuando están nacido?
(What do you do with the piglets when they are born?)

ADELETE 232. Cómo desinfectar los lechones, porque?
(How do you disinfect the piglets, and why?)

ALITEETH 233. Qué hace con los colmillos de lechones?
(What do you do with the eye teeth of the piglets?)

AWHENCOL 234. Cuándo?
(When do you do it?)

AWHYCOL 235. Porqué?
(Why do you do it?)

AHEATL 237. Cómo pueda suplimentar el calor de la madre a los lechones?
(How can you supplement the mother's heat to the piglets?)

AWHYHEAT 238. Por qué lo hace?
(Why do you do it?)

AIRONL 239. Cuándo se da hierro a los lechones?
(When do you give iron to the piglets?)

AWHENCAS 240. Cuándo castrar (capar) los machos?
(When do you castrate the males?)

AWHYCAS 241. Por qué?
(Why do you castrate them?)

ACCARAC 242. Que son las características de una cerda buena para cría?
(What are the characteristics of a sow who will give good litters?)

APATAS 243. Las patas de una cerda son importante (debe ser buenas)?
(Are the feet of a sow important?)

ARAZAS 244. Cuáles son las razas de cerdos?
(What are the different breeds of pigs?)

AWHATENF 245. Qué son las enfermedades de cerdos lo mas importante?
(What are the most important pig diseases?)

AEXPEREN 246. Tiene experiéncoia con alguna enfermedad?
(Do you have experience with some pig disease?)

AWHICHEN 247. Cuáles?
(Which?)

AVACUNAR 248. Es necesário vacunar sus cerdos?
(Is it necessary to vaccinate your pigs?)

AWHATVAC 249. Contra cuáles enfermedades?
(Against which diseases can you vaccinate?)

AWHENVAC 250. Cuándo debe vacunarlos?
(When should you vaccinate your pigs?)

HAVEPIGS 251. Tiene cerdos?
(Do you keep pigs [at home]?)

NUMBPIG 252. Cuántos?

(How many?)

HOWLONG 253. Por cuánto tiempo?
(How long have you kept them?)

HADPIGS 254. Tenía cerdos?
(Did you previously keep pigs?)

LONGAGO 255. Hace cuándo?
(How long ago did you keep pigs?)

WHATTIME 256. Por cuanto tiempo?
(For what period of time did you keep them?)

WHYNOTNW 257. Por qué no tiene ahora?
(Why don't you keep them now?)

OGROUPS 259. Está en un grupo de mujeres?
(Are you a member of a woman's group?)

PASTGROU 260. Estaba?
(Were you a member?)

PIENSAPP 261. Que piensa en este sistema de producción de cerdos de Proyecto Porcino?
(What do you think about the project's way of keeping pigs?)

READOWR 262. Puede leer o escribir? Cumplío cual grado?
(Can you read or write? What grade of school did you complete?)

APPENDIX B

Code for Encuestas

ANSWER SHEET FOR QUESTIONS No. 210 THROUGH No. 243,
AND QUESTIONS NO. 248 and NO. 250
ENCUESTA DE MANEJO #1, #2 and #3

1. Correct understands concept of question.
2. Incorrect but understands concept.
3. Correct answer but does not understand concept.
4. Incorrect answer and does not understand concept.
5. Does not know or did not answer.
6. = 1, used terminology from videotape.
7. = 5, did not answer, not able to ask question, assumption that person does not know.
8. = 1, answer learned from trip - same terminology or example from trip.

ANSWER SHEET FOR ENCUESTA DE MANEJO #1 INITIAL KNOWLEDGE

210. Sí
(Yes)

211. Golpe o molesta, o puede matar los lechones.
(He can hurt or bother them or kill the piglets.)

212. Entre primer y segundo o segundo tercer celo, siete o ocho meses.
(Between the first and second heat or, second and third heat, at seven or eight months.)

213. Dos o tres meses, después destete.
(Two or three months, after the piglets are weaned.)

214. Una vez por dia, solamente una cerda.
(Once per day, only one sow.)

215. No, necesita descansar.
(No, he needs to rest.)

216. Sí, el adulto puede montar dos veces/día, uno o dos cerdas.
(Yes, the adult can mount twice a day, one or two sows.)

217. Sí, debe descansar despues 15 dias.
(Yes, he should rest after 15 days.)

218. El veraco puede provocarle un aborto, molesta la cerda.
(The boar can provoke an abortion, he bothers the sow.)

219. 114-120 dias, tres y media meses, (acepta 4 meses).
(114-120 days, three and a half months, [accept 4 months]).

220. La misma cantidad hasta cerca del parto.
(The same quantity as before until near the delivery.)

221. No debe.
(No, she shouldn't.)

222. Si anda afuera, sí, hay que cuidarla todo el tiempo para que no sufra golpes.
(If the sow is out of the corral, she must be watched all the time to make sure she is not injured.)

223. Para limpiar y desinfectar la cerda y corral, para poner catres.
(In order to clean and disinfect the sow and corral and to put wooden dividers to protect the piglets.)

224. Tres días hasta una semana antes del parto.
(Three days to one week before the birth.)

225. Potasa o creolina o cal con disinfectante.
(Potash or creolina or lime with a disinfectant.)

226. Sí, los dos.
(Yes, both.)

227. La cerda antes de cruzar, despues destete, cerdos y lechones cada mes.
(The sow before she is bred, after piglets are weaned and piglets and pigs each month.)

228. Mejorar la salud, quite los parasitos.
(It is better for their health, gets rid of parasites.)

229. No, desde 12 horas antes.
(No, she should not eat twelve hours before birth.)

230. La cerda está inquieta, echa liquido por la vulva o tetas estaran hinchadas.
(The sow is restless, there is liquid expelled from the vulva, or the sow's teats are stretched and full of milk.)

231. Límpielos, corte el ombligo y ponga yodo o disinfectante en el ombligo.
(Clean them, cut the umbilical cord and apply disinfectant.)

232. Para prevenir infección.
(In order to prevent infection.)

233. Se les corta, no arranque, los colmillos.
(One cuts the eye teeth, you don't pull them out.)

234. Recién nacido, entre la primera semana.
(When they are recently born, in their first week.)

235. No muerde las tetas de la madre, o los lechones.
(So they don't bite the sow's teats, or other piglets.)

236. (Question deleted), Uno y media libras al nacer.
(One and a half pounds at birth.)

237. Debe calentar con caja de fuego, o bombillas, o latas de carbon.
(You should warm them with a fire, light bulbs, or by burning charcoal.)

238. Los lechones sufre frío la primera semana con catres.
(The piglets can get very cold their first week since they are separated from the sow.)

239. Tres o cuatro días y 15 dias o dos semanas, dos veces.
(Three or four days and 15 days or two weeks, two times.)

240. Tres días hasta dos semanas, un mes = 2.
(Three days to two weeks, answer of one month = 2.)

241. Engorde mas rápido, o prevenir mucho sangre, o menos problemas.
(They fatten more quickly, or it prevents hemaorrhage or fewer problems.)

242. Mínimo 12 tetas, o buen tamano, bien sano, buenas crías antes.
(A minimum of 12 teats, or good size, good health, good litters before.)

243. Sí, no están hinchadas, o torcidas, o pegadas.
(Yes, the feet should not be pulled, twisted or injured.)

244. Landrace, o Yorkshire, o Hampshire o Duroc,
(Landrace, or Yorkshire, or Hampshire or Duroc.)

2 = otros nombres pero entiende hay otros mas.
(Different names but understands there are other names.)

3 = blanco, rojo, pero no nombres exacto.
(white, red, but doesn't know the exact names.)

245. 1 = Cólera.
(Cholera.)

2 = No nombres pero entiende que hay.
(No names but understands there is a disease.)

3 = Otros nombres de enfermedades.
(Other pig diseases.)

4 = No nombres y no concepto de cólera.
(No names and no concept of cholera.)

5 = No sé.
(Doesn't know.)

246. 1 = Sí, cólera.
(Yes, cholera.)

2 = Sí, cólera y otros.
(Yes, cholera and others.)

3 = Sí, alguna enfermedad pero no es cólera.
(Yes, a name of a disease but not cholera.)

4 = No
(There are none.)

247. 1 = Cólera.
(Cholera.)

2 = Cólera y otras.
(Cholera and other names.)

3 = Otra enfermedad.
(Another disease.)

4 = No experiencia con enfermedades.
(No experience with diseases.)

5 = No sé
(I don't know.)

248. Sí, es necesario.
(Yes, it is necessary.)

249. 1 = Cólera
(Cholera.)

2 = Cólera y otras enfermedades.
(Cholera and other diseases.)

3 = Nombres de enfermedades que no tiene vacunas.
(Names of diseases that you can not vaccinate against.)

4 = No entiende vacunas.
(Doesn't understand vaccinations.)

5 = Reinitis. (Mencionada en EEUU viaje)
(Reinitis, mencioned only in the trip to the USA.)

6 = Cólera y reinitis.
(Cholera and reinitis.)

7 = No sé el nombre
(I don't know the name.)

250. Seis semanas hasta dos meses, o 60 dias, seis meses y una vez cada ano despues.
(Six weeks to two months, or 60 days, six months and one year, each year afterwards.

251. 1 = No cerdos.
(No pigs.)

2 = Sí, para engordar.
(Yes, to fatten.)

3 = Sí, madre y camada.
(Yes, sow and litter.)

4 = Sí, la madre.
(Yes, the sow.)

5 = Sí, madre y lechones para engordar.
(Yes, the sow and piglets to fatten.)

6 = Sí, veraco, madre y camada.
(Yes, a boar, sow and litter.)

7 = Sí, veraco, madre, lechones para engordar.
(Yes, a boar, sow and litter to fatten.)

252. 1 = No cerdos.
(No pigs.)

2 = Un cerdo.
(One pig.)

3 = Dos a cinco cerdos.
(Two to five pigs.)

4 = Seis a 15 cerdos.
(Six to 15 pigs.)

5 = 16 - 25 cerdos.
(16 - 25 pigs.)

6 = 26-35 cerdos.
(26 - 35 pigs.)

7 = más de 36 cerdos.
(Over 36 pigs.)

253. 1 = No cerdos.
(No pigs.)

2 = Menos de seis meses.
(Less than six months.)

3 = Seis meses a un ano.
(Six months to one year.)

4 = Uno hasta tres anos.
(One to three years.)

5 = Más de tres anos.
(More than three years.)

254. 1 = No cerdos.
(No pigs.)

2 = Sí, para engordar.
(Yes, to fatten.)

3 = Sí, madre y camada.
(Yes, sow and litter.)

4 = Sí, la madre.
(Yes, the sow.)

5 = Sí, madre y lechones para engordar.
(Yes, sow and piglets to fatten.)

6 = Sí, veraco, madre y camada.
(Yes, boar, sow and litter.)

7 = Sí, veraco, madre, lechones para engordar.
(Yes, boar, sow and piglets to fatten.)

255. 1 = No cerdos.
(No pigs.)

2 = Menos de seis meses.
(Less than six months.)

3 = Seis meses hasta un ano.
(Six months to a year.)

4 = Un ano hasta dos anos.
(One year to two years.)

5 = Dos hasta tres anos.
(Two to three years.)

6 = Tres hasta cinco anos.
(Three to five years.)

7 = Cinco hasta 10 anos.
(Five to 10 years.)

8 = Más de 10 anos.
(More than 10 years.)

9 = No sé, o no contesta.
(I don't know, or no answer.)

256. 1 = No cerdos
(No pigs.)

2 = Tenía cerdos menos de un més.
(I had pigs less than a month.)

3 = Tenía cerdos un més hasta seis meses.
(I had pigs from one month to six months.)

4 = Tenía cerdos seis meses hasta un año.
(I had pigs from six months to one year.)

5 = Tenía cerdos un ano hasta dos años.
(I had pigs from one year to two years.)

6 = Tenía cerdos dos hasta tres años.
(I had pigs two to three years.)

7 = Tenía cerdos mas de tres años en secuencia.
(I had pigs more than three years consecutively.)

8 = Tenía cerdos mas de tres años pero no todo el tiempo.
(I had pigs more than three years but not all of the time.)

9 = No sé, no contesta.
(I don't know, or no answer.)

257. 1 = Tengo cerdos.
(I have pigs.)

2 = El costo del alimento es demasiado caro.
(It cost too much to feed them.)

3 = No hay espacio para los cerdos.
(There isn't space to keep them.)

4 = Cuesta demasiado tiempo y no puedo cuidarlo.
(It took too much time and I couldn't keep them.)

5 = No hay buen mercado.
(There is not a good market for them.)

6 = Tengo miedo de las enfermedades de cerdos.
(I am afraid they will get sick.)

7 = Otra razón.
(Other reasons.)

8 = No tengo suficiente dinero para comprar o mantenerlo.
(I don't have enough money to buy them or keep them.)

258. 1 = Desde el princípio del proyecto.
(From the beginning of the project.)

2 = Desde el primer seminario.
(From the first seminar.)

3 = Uno hasta tres meses.
(One to three months.)

4 = Cuatro hasta seis meses.
(Four to six months.)

5 = Desde la inauguración de la porqueriza.
(From the inauguration of the pig farm.)

6 = Acaba de empezar con el proyecto.
(I have just started with the project.)

259. 1 = No.
(No.)

2 = Sí, Amas de Casas.
(Yes, Homemaker's group.)

3 = Sí, Patronato.
(Yes, Community leaders' group.)

4 = Sí, Comedor Infantil o Vaso de Leche
(Yes, Children's Kitchen group, or Glass of Milk.)

5 = Sí, otro grupo o más de un grupo.
(Yes, other group or more than one group.)

6 = Sí, grupo de animales domesticas.
(Yes, group taking care of domestic animals.)

7 = Sí, grupo agrícola.
(Yes, agricultural group.)

8 = Sí, corte y confección.
(Yes, sewing group.)

9 = Sí, relacionado a la escuela o academía.
(Yes, related to the school.)

260. 1 = No.
(No.)

2 = Sí, Amas de Casas.
(Yes, Homemaker's group.)

3 = Sí, Patronato.
(Yes, Community leaders' group.)

4 = Sí, Comedor Infantil o Vaso de Leche.
(Yes, Children's Kitchen group, or Glass of Milk.)

5 = Sí, otro grupo o más de un grupo.
(Yes, other group or more than one group.)

6 = Sí, grupo de animales domesticas.
(Yes, group taking care of domestic animals.)

7 = Sí, grupo agrícola.
(Yes, agricultural group.)

8 = Sí, corte y confección.
(Yes, sewing group.)

9 = Sí, relacionado a la escuela o academia.
(Yes, related to the school.)

261. 1 = Me gusta bastante.
(I like it a lot.)

2 = Me gusta. (Voy a luchar, superar), esta bien.
(It is fine. I am going to fight to better my life.)

3 = No puedo decir.
(I can't say.)

4 = No me gusta.
(I don't like it.)

5 = No vale la pena.
(It's not worth the effort.)

6 = No sé.
(I don't know.)

7 = Me gusta pero hay problemas con otras socias.
(I like it but there are problems with other members.)

8 = Me gusta pero hay problemas con dinero.
(I like it but there are financial problems.)

9 = Espero que vaya bien.
(I hope it goes well.)

262. 1 = Sí pero no fuí a la escuela.
(Yes, but I did not go to school.)

2 = Sí, fuí a primer grado.
(Yes, I went to first grade.)

3 = Sí, cumplí segundo hasta quinto grado.
(Yes, I finished second to fifth grades.)

4 = Sí, cumplí sexto grado.
(Yes, I finished sixth grade.)

5 = Sí, fuí a colegio.
(Yes, I went to high school.)

6 = Sí, fuí a clases para adultos.
(Yes, I went to adult education classes.)

7 = No.
(No.)

8 = No, fuí a primer grado.
(No, but I went to first grade.)

9 = No, fuí a segundo o tercer grado.
(No, but I went to second or third grade.)

263. 1 = No había o no asistí charlas sobre el manejo.
(I did not have or attend any talks on the care of pigs.)

2 = Asistí las charlas para formación del grupo incluyendo algo sobre manejo.
(I attended the talks on the formation of the group including something on the care of pigs.)

3 = Asistí una charla (#1) sobre aparear.
(I attended the first talk on breeding pigs.)

4 = Asistí una charla (#2) sobre cuida durante la preneza.
(I attended the second talk on care of the pregnant pig.)

5 = Asistí una charla sobre cuida de lechones.
(I attended a talk on the care of piglets.)

6 = Fuí a 1 y 2 charlas.
(I went to talk #1 and #2.)

7 = Fuí a 1 y 3 charlas.
(I went to talk #1 and #3.)

8 = Fuí a 2 y 3 charlas.
(I went to talk #2 and #3.)

9 = Asistí las tres charlas sobre manejo de cerdos.
(I went to the three talks on care of pigs.)

264. 1 = No
(No.)

2 = Sí
(Yes.)

265. 1 = No
(No.)

2 = Sí
(Yes.)

ANSWER SHEET FOR ENCUESTA DE MANEJO #2 AFTER VIEWING TAPE PROGRAMS

Answers for questions 210 through 250 are the same as the answers for questions 210 through 250 on Encuesta De Manejo #1.

281. 1 = No.
(No.)

2 = Sí.
(Yes.)

3 = De la entrenadora #1.
(From the trainer #1.)

4 = De la entrenadora #2.
(From the trainer #2.)

5 = De asesor de Ministerio de Recursos Naturales (MRN).
(From the advisor from the Ministry of Natural Resources.)

6 = De entrenadora y asesor de MRN.
(From the trainer and advisor from MRN.)

7 = Del SSLP.
(From the SSLP.)

8 = Otro.
(Other.)

9 = No contesta.
(No answer.)

282. 1 = Nada.
(Nothing.)

2 = Seminario al principio.
(The seminar at the beginning.)

3 = Otro seminarios.
(Other seminars.)

4 = Una vez.
(One time.)

5 = Dos veces.
(Two times.)

6 = Tres veces.
(Three times.)

7 = Una semana.
(One week.)

8 = Dos semanas.
(Two weeks.)

9 = Varios.
(Various.)

283. 1 = No.
(No.)

2 = Un folleto de proyecto.
(A bulletin from the project.)

3 = Ví los folletos pero no tengo.
(I saw the bulletins but I do not have any.)

4 = Información de FAO.
(Information from FAO.)

5 = Información sobre vacuna contra colera, no OEF.
(Information on the vaccination against cholera, not from the SSLP.)

284. 1 = Nada.
(Nothing.)

2 = Manejo de cerdos - OEF.
(The care of pigs - OEF.)

3 = Manejo de cerdos - FAO.
(The care of pigs - FAO.)

285. 1 = Nada.
(Nothing.)

2 = Ministerio de Recursos Naturales.
(The Ministry of Natural Resources.)

3 = FAO.
(Food and Agricultural Organization.)

4 = Otro.
(Other.)

5 = Cintas de video.
(Videotape programs.)

6 = Vetranario.
(Veterinarian.)

286. 1 = No.
(No.)

2 = Sí, mas de una contesta.
(Yes, more than one answer.)

3 = Sí, manejo de cerdos.
(Yes, the care of pigs.)

4 = Sí, como limpiar corrales, disinfectar.
(Yes, how to clean the corrals and disinfect them.)

5 = Sí, que hace con lechones.
(Yes, what to do with the piglets.)

6 = Sí, inyectar o vacunar solamente.
(Yes, to inject or vaccinate.)

7 = Sí, capar solamente.
(Yes, to castrate.)

8 = Sí, decolmillar y decolar solamente.
(Yes, to cut the eye teeth and tails.)

9 = Sí, mantiene agua y comida.
(Yes, how to feed and water the pigs.)

10= Sí, marca las cerdos.
(Yes, how to mark the pigs.)

287. 1 = Una punta.
(One point.)

2 = Dos puntas.
(Two points.)

3 = Tres puntas.
(Three points.)

4 = Cuatro puntas.
(Four points.)

5 = Cinco puntas.
(Five points.)

6 = Seis puntas.
(Six points.)

7 = Siete puntas.
(Seven points.)

8 = No contesta.
(No answer.)

9 = Manejo de cerdos.
(Care of pigs.)

288. 1 = No.
(No.)

2 = Sí.
(Yes.)

3 = No contesta.
(No answer.)

289. 1 = No.
(No.)

2 = Sí.
(Yes.)

3 = No contesta.
(No answer.)

290. 1 = No.
(No.)

2 = Sí.
(Yes.)

3 = No contesta.
(No answer.)

291. 1 = No.
(No.)

2 = Sí.
(Yes.)

3 = No sé.
(I don't know.)

4 = No contesta.
(No answer.)

5 = Sí y hacelo.
(Yes and I do it.)

292. 1 = No.
(No.)

2 = Sí.
(Yes.)

3 = Sí, pero no tengo dinero.
(Yes, but I don't have money to do it.)

4 = No contesta.
(No answer.)

5 = Sí y hace lo.
(Yes, and I do it.)

6 = Sí, pero no hacía antes.
(Yes, but I didn't do it before.)

293. 1 = No.
(No.)

2 = Sí.
(Yes.)

3 = Sí, pero no tengo dinero.
(Yes, but I don't have any money to do it.)

4 = No contesta.
(No answer.)

5 = Sí y hace lo.
(Yes, and I do it.)

6 = Sí, pero no hacía antes.
(Yes, but I didn't do it before.)

294. 1 = No.
(No.)

2 = Sí.
(Yes.)

3 = Sí, pero no tengo dinero.
(Yes, but I don't have any money to do it.)

4 = No contesta.
(No answer.)

5 = Sí y hace lo.
(Yes, and I do it.)

6 = Sí, pero no hacía antes.
(Yes, but I didn't do it before.)

295. 1 = No tengo cerdos.
(No, I don't have pigs.)

2 = No los hace.
(No, I don't do that.)

3 = No hacía antes pero quiero hacerlo ahora.
(I did not do it before but I want to do it now.)

4 = Sí, uno hago.
(Yes, I do one.)

5 = Sí, dos hago.
(Yes, I do two.)

6 = Sí, tres hago.
(Yes, I do three.)

7 = Sí, hago todo.
(Yes, I do all of them.)

8 = No tengo pisto hacerlo antes o ahora.
(I don't have money to do it now or to do it before.)

9 = No tengo tiempo o energía hacerlo.
(I don't have time or the energy to do it.)

296. 1 = El manejo de cerdos.
(The care of pigs.)

2 = Que hace con lechones y/o caparlos.
(What to do with piglets and or how to castrate them.)

3 = Más de una contesta.
(More than one answer.)

4 = Mercado.
(The market.)

5 = No entiendo, no contesta.
(I don't understand, no answer.)

6 = Practica de hacer - experiéncia.
(Practice doing it, experience.)

7 = Todo.
(Everything.)

8 = Las medicinas, o enfermedades, o vacunas.
(Medicines, diseases or how to vaccinate.)

9 = Los cultivos - como cultivar alimentos para cerdos.
(How to cultivate crops to feed to pigs.)

10 = Otro.
(Other.)

297. 1 = No.
(No.)

2 = Sí, otra.
(Yes, other.)

3 = No contesta, no se.
(No answer, I don't know.)

4 = Sí, trabaje.
(Yes, work.)

5 = No entiendo.
(I don't understand.)

6 = Anime la gente.
(Stimulate the people.)

7 = El proyecto ayudará nuestra situación económica.
(The project will help our economic situation.)

8 = Organíce bien.
(Organize well.)

9 = Déles orientación.
(Give them orientation.)

ENCUESTA DE MANEJO #3 - AFTER THE TRIP

All answers of questions 210 - 250 and 288 - 296 are coded in the same way as questions of the same number listed in ENCUESTA DE MANEJO #1.

298. 1 = No.
(No.)

2 = Sí.
(Yes.)

3 = Sí, más de una contesta.
(Yes, more than one answer.)

4 = La sanidad, o limpieza.
(Sanitation in the pig farm.)

5 = Que hace con lechones.
(What to do with piglets.)

6 = Capar lechones.
(How to castrate piglets.)

7 = Los cultivos - alimentación para cerdos.
(How to feed the pigs, what crops to grow.)

8 = La medicina, enfermedades, o vacunas.
(Medicine, diseases or how to give vaccinations.)

9 = Mercado, venta de cerdos.
(Marketing and sell of pigs.)

299. 1 = Una punto.
(One point.)

2 = Dos puntos.
(Two points.)

3 = Tres puntos.
(Three points.)

4 = Cuatro puntos.
(Four points.)

5 = Cinco puntos.
(Five points.)

6 = Seis puntos.
(Six points.)

7 = Siete puntos.
(Seven points.)

8 = No contesta, no entiende.
(No answer, I don't understand.)

9 = Manejo de cerdos.
(The care of pigs.)

APPENDIX C

Demography Questionnaire

DEMOGRAFIA

LUGAR:
CASA #:

FECHA:
INVESTIGADOR:

10.	9.	8.	7.	6.	5.	4.	3.	2.	1.	
										SEXO
										EDAD
										ESTADO CIVIL
										DUERME EN CASA
										# DE COMPAÑEROS
										ALFABETIZADO
										AÑOS EN ESCUELA
										# TOTAL DE NINOS
										NINOS MUERTOS
										ABORTOS

MUJER	HOMBRE	LUGAR DE NACIMIENTO DE:
		PERSONA
		MADRE
		PADRE
		HA VIVIDO EN OTROS PUEBLOS

From Dean, 1986 Unpublished.

APPENDIX D

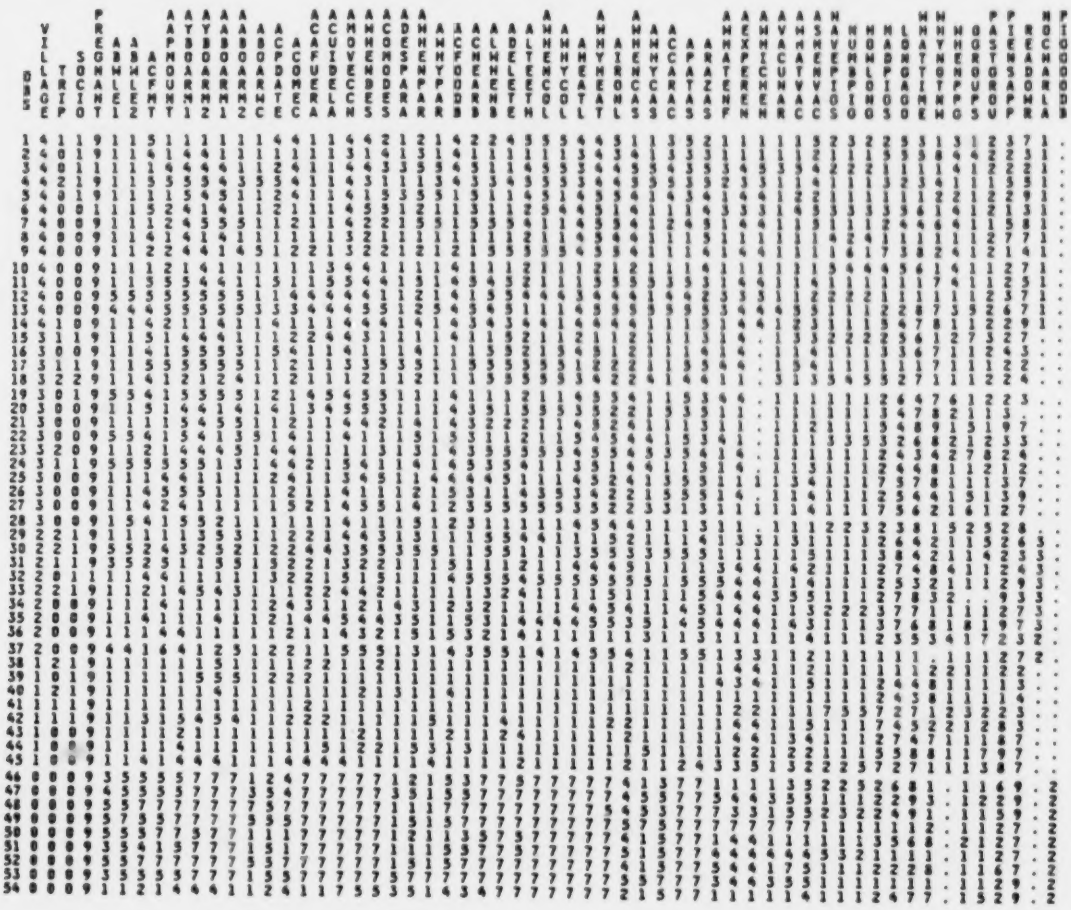
Original Data

The acronyms correspond to questions on Encuesta de Manejo # 1, Encuesta de Manejo # 2, Encuesta de Manejo # 3 and the Demographic Questionnaire.

Appendix D1

Encuesta De Manejo # 1

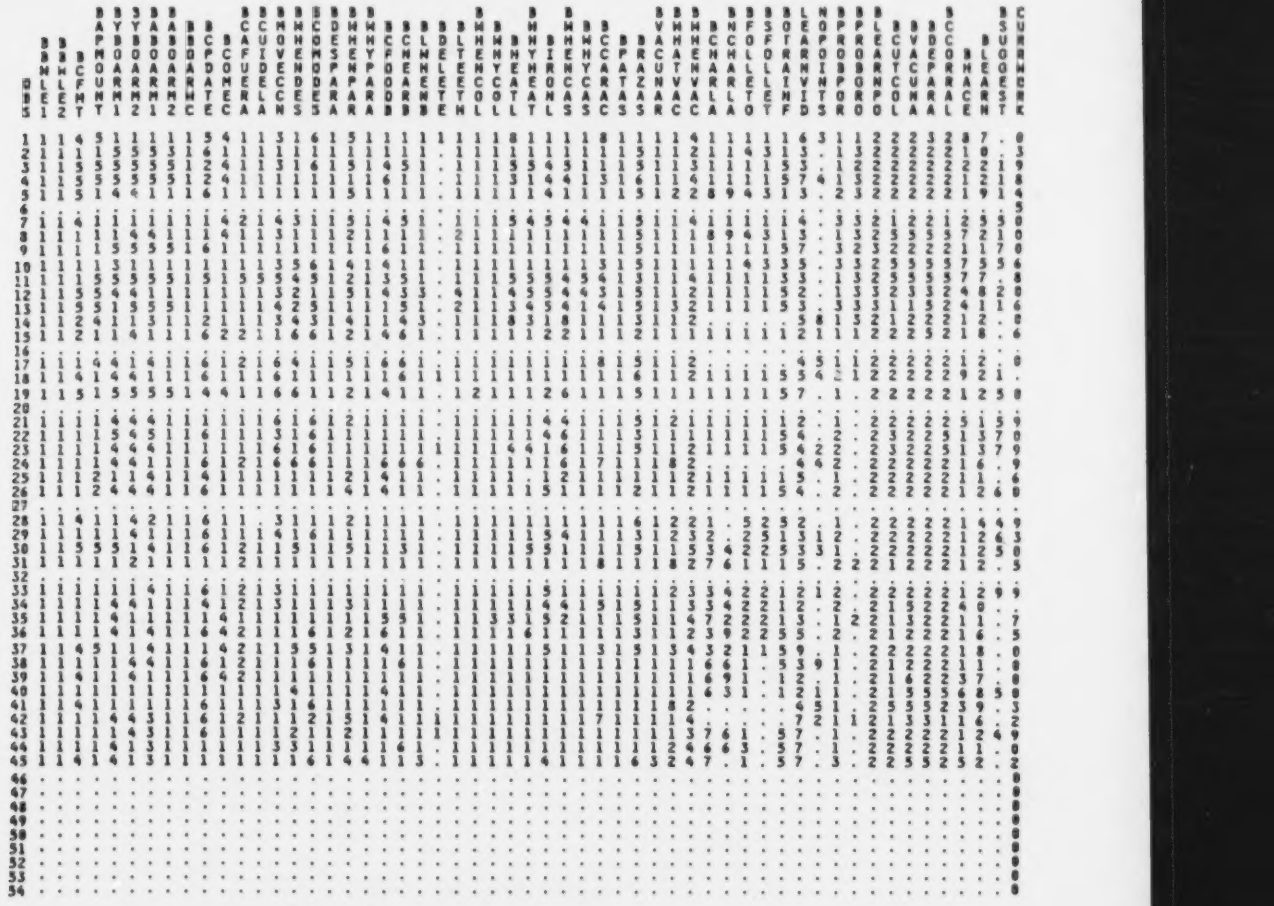
Coded Data from the Questionnaire Given to SSLP Study Population at Time 1



Appendix D2

Encuesta De Manejo # 2

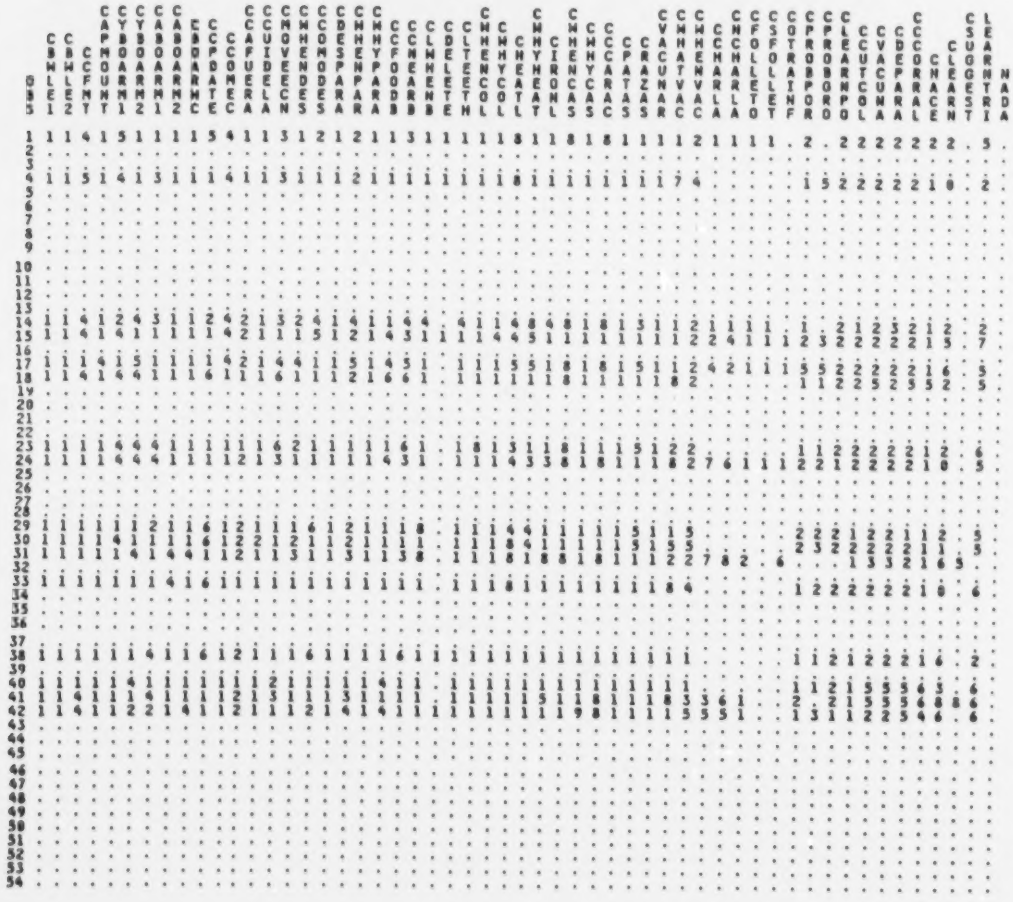
Coded Data from the Questionnaire Given to SSLP Study Population at Time 2



Appendix D3

Encuesta De Manejo # 3

Coded Data from the Questionnaire Given to SSLP Trip Women at Time 3



Appendix D4

Coded Data from the Demographic Questionnaire

OBS	AGE	MARITAL	MALEINF	MALEYC	MALEOC	MALEAT	MALEOT	MALEINF	FEMYC	FEMOC	FEMAT	FEMOT	FEMINF	FNOLD	FNINFC	MNINFC	MNOLD
1	3	3	1	1	0	1	0	0	0	2	0	0	0	0	0	0	0
2	3	3	0	1	1	0	0	2	1	0	1	0	0	0	0	0	1
3	4	3	1	0	1	0	0	2	0	1	0	0	0	0	0	0	1
4	2	3	0	2	0	0	0	2	0	0	0	0	0	1	0	0	1
5	7	1	0	0	2	0	0	5	0	0	0	1	0	0	0	0	0
6	6	3	0	1	1	0	1	3	0	0	1	2	0	0	0	0	1
7	5	3	0	1	2	1	0	5	0	0	2	1	0	0	0	0	1
8	4	3	1	1	0	2	0	4	0	0	0	1	0	0	0	0	1
9	4	2	3	0	1	1	0	5	0	0	2	0	0	0	0	0	1
10	6	3	0	0	2	1	0	3	0	1	0	2	1	5	1	0	0	1	1
11	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1	3	0	2	2
12	4	3	1	0	0	2	0	3	0	0	2	0	0	2	0	1	0	0	2
13	6	3	0	0	2	0	1	4	0	0	0	0	0	2	0	0	0	0	1
14	6	5	1	0	3	1	0	5	0	0	1	0	0	1	0	0	0	0	0
15	7	3	0	0	1	3	0	4	0	0	0	0	0	1	0	0	0	0	2
16	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
17	7	1	0	0	1	0	0	3	0	0	2	1	0	7	0	0	0	0	0
18	1	3	1	1	0	0	0	2	1	0	0	0	0	1	0	0	1	0	1
19	3	3	0	0	0	2	0	2	1	1	2	0	0	4	0	0	0	0	1
20	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
21	3	3	0	1	0	0	0	1	1	0	0	0	0	1	0	0	0	0	1
22	3	3	0	1	1	0	0	2	1	1	1	0	0	3	0	0	0	0	1
23	8	5	0	0	0	0	0	4	0	0	0	0	0	4	0	0	0	1	0
24	8	4	0	0	1	1	1	4	0	0	1	1	0	5	1	0	1	0	0
25	4	3	0	1	1	2	0	4	1	0	0	0	0	1	0	0	0	0	1
26	2	3	1	1	1	0	0	3	0	0	0	0	0	0	0	0	0	0	1
27	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
28	6	3	0	1	2	1	1	5	1	1	0	2	0	6	0	0	0	0	1
29	9	2	0	0	0	2	1	6	0	0	0	1	0	4	1	0	0	0	1
30	4	3	0	0	2	0	0	2	0	0	0	2	0	2	0	0	0	0	2
31	5	3	1	0	1	3	0	0	0	1	0	1	0	2	0	0	0	0	1
32	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
33	5	1	0	0	1	0	0	1	1	0	1	3	0	4	0	0	0	0	0
34	4	3	0	0	2	0	0	2	1	2	1	0	0	4	0	0	0	0	1
35	4	4	0	0	0	0	0	1	1	0	2	0	0	5	0	1	2	1	0
36	8	3	0	0	1	1	0	3	0	0	2	1	0	5	0	0	1	0	1
37	5	2	0	1	3	0	0	4	2	1	0	0	0	3	0	0	0	0	1
38	4	2	0	0	1	0	0	5	0	0	1	1	0	3	0	0	0	0	1
39	5	4	1	1	0	0	0	2	0	0	1	0	0	0	0	0	0	0	2
40	1	2	0	0	1	0	0	1	0	1	0	0	0	1	0	0	0	0	1
41	4	2	0	1	3	2	0	0	1	0	2	0	0	3	0	3	1	0	2
42	4	2	1	1	1	2	0	5	0	0	0	0	0	0	0	0	0	0	1
43	4	2	0	1	0	0	0	1	0	0	0	1	0	4	0	0	0	0	1
44	7	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
45	9	2	0	0	1	0	1	2	0	0	0	0	0	0	0	0	0	0	2
46	6	3	1	2	1	1	0	6	1	0	2	3	0	7	0	0	0	0	1
47	2	1	0	1	0	0	0	1	0	1	0	0	0	1	0	0	1	0	0
48	3	1	0	0	0	0	0	0	0	0	1	1	0	2	0	1	3	0	3
49	4	2	1	1	1	1	0	4	0	1	1	0	0	3	0	0	0	0	1
50	3	3	1	1	0	1	0	3	0	0	2	0	0	2	0	0	0	0	1
51	5	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
52	3	2	1	0	1	0	0	2	0	1	1	1	0	3	0	0	0	0	1
53	3	3	2	0	0	0	0	2	0	2	1	0	0	3	0	0	0	0	1
54	6	3	0	0	0	0	0	0	0	0	0	2	0	7	0	0	0	0	1

APPENDIX E

Collapsed Data Sets

Appendix E1

Collapsed Data Set When One is Correct

The answers from the original data set coded 1 through 8 have been collapsed to 1 to 5. This data set has then been collapsed so that 1 is correct and all other answers are coded 0, incorrect.

On questionnaire at T1, questions ABWLE1 through ABOARWC are questions on breeding; ACPDATE through ACNEARB (excluding ACUIDELA) are questions on sows; ALWHENB through AWHYCAS (excluding ADELETE) and AVACUNAR through AWHENVAC are questions relating to care of piglets for questionnaire at T1. With regard to the questionnaire scores at T1, ATB = total score on breeding questions, ATS = total score on sows, ATP = total score on piglet questions and ATOT = total score on questionnaire.

On questionnaire at T2 (after viewing the videotape programs), questions BBWLE1 through BBOARWC are questions on breeding; BCPDATE through BCNEARB (excluding BCUIDELA) are questions on sows; BLWHENB through BWHYCAS (excluding BDELETE) and BVACUNAR through BWHENVAC are questions relating to care of piglets for questionnaire at T2. With regard to the questionnaire scores at T2, BTB = total score on breeding questions, BTS = total score on sows, BTP = total score on piglet questions and BTOT = total score on questionnaire.

On questionnaire at T3 (which only the Trip Women took), questions CBWLE1 through CBOARWC are questions on breeding; CCPDATE through CCNEARB (excluding CCUIDELA) are questions on sows; CLWHENB through CWHYCAS (excluding CDELETE) and CVACUNAR through CWHENVAC are questions relating to care of piglets for questionnaire at T3. With regard to the questionnaire scores at T3, CTB = total score on breeding questions, CTS = total score on sows, CTP = total score on piglet questions and CTOT = total score on questionnaire.

Appendix E1

The Total Scores on the Questionnaire at T1, T2 and T3, When One is Correct

ID	VILLAGE	ATB	ATS	ATP	ATOT	BTB	BTS	BTP	BTOT	CTB	CTS	CTP	CTOT
1	4	8	3	4	15	7	7	11	25	7	6	11	24
2	4	6	7	7	20	5	11	11	27	.	.	.	.
3	4	5	1	1	7	3	5	7	15	.	.	.	.
4	4	2	4	2	8	3	9	8	20	6	9	10	25
5	4	6	3	4	13	6	10	9	25	.	.	.	.
6	4	5	5	4	14	.	.	.	.	.	.	.	.
7	4	4	4	5	13	8	4	6	18	.	.	.	.
8	4	6	9	7	22	7	8	11	26	.	.	.	.
9	4	3	4	4	11	5	11	12	28	.	.	.	.
10	4	7	8	9	24	8	7	12	27	.	.	.	.
11	4	4	4	5	13	4	3	6	13	.	.	.	.
12	4	1	5	3	9	5	6	4	15	.	.	.	.
13	4	0	1	3	4	4	7	5	16	.	.	.	.
14	4	6	4	3	13	6	5	9	20	5	4	7	16
15	3	5	6	7	18	7	7	10	24	7	5	8	20
16	3	4	7	5	16	.	.	.	.	.	.	.	.
17	3	3	4	3	10	6	8	11	25	7	5	9	21
18	3	5	8	1	14	6	11	11	28	6	10	11	27
19	3	2	5	7	14	4	7	10	21	.	.	.	.
20	3	5	4	4	13	.	.	.	.	.	.	.	.
21	3	5	4	5	14	6	10	9	25	.	.	.	.
22	3	2	6	6	14	6	10	11	27	.	.	.	.
23	3	4	5	3	12	6	11	9	26	6	10	9	25
24	3	2	3	5	10	7	10	11	28	6	8	8	22
25	3	7	3	5	15	7	8	9	24	.	.	.	.
26	3	5	6	4	15	5	9	10	24	.	.	.	.
27	3	6	3	2	11	.	.	.	.	.	.	.	.
28	3	4	7	8	19	6	9	10	25	.	.	.	.
29	2	6	5	6	17	8	10	8	26	8	9	9	26
30	2	1	2	5	8	5	7	9	21	8	8	9	25
31	2	3	4	5	12	8	10	11	29	6	7	10	23
32	2	7	4	2	13	.	.	.	.	.	.	.	.
33	2	4	7	6	17	8	9	9	26	8	11	11	30
34	2	8	3	6	17	7	7	9	23	.	.	.	.
35	2	7	3	1	11	8	8	7	23	.	.	.	.
36	2	7	4	8	19	7	8	11	26	.	.	.	.
37	2	3	3	5	11	6	5	9	20	.	.	.	.
38	1	8	9	10	27	7	10	12	29	8	10	12	30
39	1	6	8	11	25	7	9	12	28	.	.	.	.
40	1	8	8	12	28	9	9	12	30	8	10	12	30
41	1	9	10	12	31	8	10	11	29	7	9	10	26
42	1	4	8	9	21	6	7	11	24	5	7	10	22
43	1	8	9	8	25	7	9	11	27	.	.	.	.
44	1	8	6	9	23	7	9	10	26	.	.	.	.
45	1	5	7	8	20	6	9	7	22	.	.	.	.
46	0	1	2	2	5	.	.	.	.	.	.	.	.
47	0	0	1	0	1	.	.	.	.	.	.	.	.
48	0	0	3	1	4	.	.	.	.	.	.	.	.
49	0	0	2	0	2	.	.	.	.	.	.	.	.
50	0	1	5	4	10	.	.	.	.	.	.	.	.
51	0	2	4	1	7	.	.	.	.	.	.	.	.
52	0	0	2	2	4	.	.	.	.	.	.	.	.
53	0	1	0	0	1	.	.	.	.	.	.	.	.
54	0	5	2	3	10	.	.	.	.	.	.	.	.

Appendix E2

Collapsed Data Set When One and Two are Correct

The answers from the original data set coded 1 through 8 have been collapsed to 1 to 5. This data set has then been collapsed so that 1 and 2 are correct and all other answers are coded 0, incorrect.

On questionnaire at T1, questions ABWLE1 through ABOARWC are questions on breeding; ACPDATE through ACNEARB (excluding ACUIDELA) are questions on sows; ALWHENB through AWHYCAS (excluding ADELETE) and AVACUNAR through AWHENVAC are questions relating to care of piglets for questionnaire at T1. With regard to the questionnaire scores at T1, ATB = total score on breeding questions, ATS = total score on sows, ATP = total score on piglet questions and ATOT = total score on questionnaire.

On questionnaire at T2 (after viewing the videotape programs), questions BBWLE1 through BBOARWC are questions on breeding; BCPDATE through BCNEARB (excluding BCUIDELA) are questions on sows; BLWHENB through BWHYCAS (excluding BDELETE) and BVACUNAR through BWHENVAC are questions relating to care of piglets for questionnaire at T2. With regard to the questionnaire scores at T2, BTB = total score on breeding questions, BTS = total score on sows, BTP = total score on piglet questions and BTOT = total score on questionnaire.

On questionnaire at T3 (which only the Trip Women took), questions CBWLE1 through CBOARWC are questions on breeding; CCPDATE through CCNEARB (excluding CCUIDELA) are questions on sows; CLWHENB through CWHYCAS (excluding CDELETE) and CVACUNAR through CWHENVAC are questions relating to care of piglets for questionnaire at T3. With regard to the questionnaire scores at T3, CTB = total score on breeding questions, CTS = total score on sows, CTP = total score on piglet questions and CTOT = total score on questionnaire.

Appendix E2

The Total Scores on the Questionnaire at T1, T2 and T3, When One and Two are Correct

ID	VILLAGE	ATB	ATS	ATP	ATOT	BTB	BTS	BTP	BTOT	CTB	CTS	CTP	CTOT
1	4	8	6	5	19	7	7	11	25	7	7	12	26
2	4	6	7	8	21	5	11	12	28	.	.	.	.
3	4	5	2	1	8	3	6	7	16	.	.	.	.
4	4	2	4	2	8	3	10	8	21	6	9	10	25
5	4	6	4	6	16	6	10	11	27	.	.	.	.
6	4	6	7	5	18	.	.	.	.	.	.	.	.
7	4	5	7	5	17	8	5	6	19	.	.	.	.
8	4	6	10	8	24	7	9	12	28	.	.	.	.
9	4	5	10	4	19	5	11	12	28	.	.	.	.
10	4	8	8	12	28	8	7	12	27	.	.	.	.
11	4	4	4	6	14	4	4	6	14	.	.	.	.
12	4	1	6	4	11	5	7	5	17	.	.	.	.
13	4	0	2	3	5	4	8	7	19	.	.	.	.
14	4	7	4	4	15	7	6	10	23	6	6	8	20
15	3	5	8	10	23	8	10	12	30	7	7	9	23
16	3	4	7	7	18	.	.	.	.	.	.	.	.
17	3	3	5	6	14	6	9	12	27	7	5	10	22
18	3	7	11	3	21	6	11	12	29	6	11	12	29
19	3	2	6	8	16	4	8	12	24	.	.	.	.
20	3	5	4	6	15	.	.	.	.	.	.	.	.
21	3	5	6	9	20	6	11	10	27	.	.	.	.
22	3	2	6	7	15	6	10	11	27	.	.	.	.
23	3	5	5	3	13	6	11	10	27	6	11	11	28
24	3	2	4	5	11	7	11	12	30	6	8	9	23
25	3	7	4	6	17	8	9	11	28	.	.	.	.
26	3	5	8	6	19	6	9	11	26	.	.	.	.
27	3	7	5	4	16	.	.	.	.	.	.	.	.
28	3	5	8	8	21	7	10	12	29	.	.	.	.
29	2	6	7	7	20	8	10	9	27	9	11	9	29
30	2	4	4	5	13	5	8	9	22	8	11	9	28
31	2	4	8	7	19	9	11	12	32	6	8	12	26
32	2	7	6	2	15	.	.	.	.	.	.	.	.
33	2	5	9	6	20	8	10	10	28	8	11	11	30
34	2	8	6	7	21	7	8	9	24	.	.	.	.
35	2	7	4	1	12	8	8	8	24	.	.	.	.
36	2	7	6	9	22	7	10	12	29	.	.	.	.
37	2	4	5	6	15	6	6	9	21	.	.	.	.
38	1	8	11	12	31	7	11	12	30	8	11	12	31
39	1	6	11	11	28	7	10	12	29	.	.	.	.
40	1	8	9	12	29	9	9	12	30	8	10	12	30
41	1	9	11	12	32	8	10	12	30	7	9	10	26
42	1	4	10	11	25	6	9	11	26	7	9	10	26
43	1	9	11	9	29	7	11	11	29	.	.	.	.
44	1	8	8	11	27	7	9	11	27	.	.	.	.
45	1	5	7	11	23	6	9	8	23	.	.	.	.
46	0	1	4	2	7	.	.	.	.	.	.	.	.
47	0	0	1	0	1	.	.	.	.	.	.	.	.
48	0	0	3	1	4	.	.	.	.	.	.	.	.
49	0	0	2	0	2	.	.	.	.	.	.	.	.
50	0	1	6	4	11	.	.	.	.	.	.	.	.
51	0	2	4	1	7	.	.	.	.	.	.	.	.
52	0	0	2	2	4	.	.	.	.	.	.	.	.
53	0	1	0	0	1	.	.	.	.	.	.	.	.
54	0	6	3	4	13	.	.	.	.	.	.	.	.

Appendix E3

Collapsed Data Set When One and Three are Correct

The answers from the original data set coded 1 through 8 have been collapsed to 1 to 5. This data set has then been collapsed so that 1 and 3 are correct and all other answers are coded 0, incorrect.

On questionnaire at T1, questions ABWLE1 through ABOARWC are questions on breeding; ACPDATE through ACNEARB (excluding ACUIDELA) are questions on sows; ALWHENB through AWHYCAS (excluding ADELETE) and AVACUNAR through AWHENVAC are questions relating to care of piglets for questionnaire at T1. With regard to the questionnaire scores at T1, ATB = total score on breeding questions, ATS = total score on sows, ATP = total score on piglet questions and ATOT = total score on questionnaire.

On questionnaire at T2 (after viewing the videotape programs) questions BBWLE1 through BBOARWC are questions on breeding; BCPDATE through BCNEARB (excluding BCUIDELA) are questions on sows; BLWHENB through BWHYCAS (excluding BDELETE) and BVACUNAR through BWHENVAC are questions relating to care of piglets for questionnaire at T2. With regard to the questionnaire scores at T2, BTB = total score on breeding questions, BTS = total score on sows, BTP = total score on piglet questions and BTOT = total score on questionnaire.

On questionnaire at T3 (which only the Trip Women took), questions CBWLE1 through CBOARWC are questions on breeding; CCPDATE through CCNEARB (excluding CCUIDELA) are questions on sows; CLWHENB through CWHYCAS (excluding CDELETE) and CVACUNAR through CWHENVAC are questions relating to care of piglets for questionnaire at T3. With regard to the questionnaire scores at T3, CTB = total score on breeding questions, CTS = total score on sows, CTP = total score on piglet questions and CTOT = total score on questionnaire.

Appendix E3
The Total Scores on the Questionnaire at T1, T2 and T3, When One and Three are Correct

ID	VILLAGE	ATB	ATS	ATP	ATOT	BTB	BTS	BTP	BTOT	CTB	CTS	CTP	CTOT
1	4	8	3	4	15	7	8	11	26	7	7	11	25
2	4	6	9	9	24	6	11	11	28	.	.	.	.
3	4	5	3	3	11	3	6	8	17	.	.	.	.
4	4	3	7	4	14	3	9	9	21	7	9	10	26
5	4	6	4	4	14	6	10	9	25	.	.	.	.
6	4	5	6	4	15	.	.	.	.	.	.	.	.
7	4	4	4	5	13	8	5	6	19	.	.	.	.
8	4	6	10	7	23	7	9	11	27	.	.	.	.
9	4	5	5	4	12	5	11	12	28	.	.	.	.
10	4	7	8	9	24	9	8	12	29	.	.	.	.
11	4	4	4	5	13	4	4	6	14	.	.	.	.
12	4	1	5	4	10	5	8	5	18	.	.	.	.
13	4	1	5	1	7	4	7	7	18	.	.	.	.
14	4	6	5	4	15	7	7	11	25	6	4	7	17
15	3	5	7	9	21	7	7	10	24	7	6	8	21
16	3	5	7	5	17	.	.	.	.	.	.	.	.
17	3	3	7	3	13	6	8	11	25	7	6	9	20
18	3	5	8	4	17	6	11	11	28	6	10	11	27
19	3	2	5	7	14	4	7	10	21	.	.	.	.
20	3	5	7	5	17	.	.	.	.	.	.	.	.
21	3	5	5	5	15	6	10	9	25	.	.	.	.
22	3	3	7	6	16	6	11	11	28	.	.	.	.
23	3	4	8	3	15	6	11	9	26	6	10	10	26
24	3	3	3	8	14	7	10	11	28	6	9	10	25
25	3	7	4	6	17	7	8	9	24	.	.	.	.
26	3	5	7	6	18	5	9	10	24	.	.	.	.
27	3	6	4	4	14	.	.	.	.	.	.	.	.
28	3	4	8	8	20	6	10	10	26	.	.	.	.
29	2	8	7	7	22	8	10	9	27	8	9	9	26
30	2	2	4	8	14	5	8	9	22	8	8	9	25
31	2	4	5	5	14	8	10	11	29	6	10	10	26
32	2	7	5	2	14	.	.	.	.	.	.	.	.
33	2	5	7	8	20	8	10	10	28	8	11	11	30
34	2	8	6	7	21	7	9	10	26	.	.	.	.
35	2	7	4	4	15	8	5	9	25	.	.	.	.
36	2	7	6	9	22	7	8	11	26	.	.	.	.
37	2	3	5	5	13	6	6	10	22	.	.	.	.
38	1	8	9	10	27	7	10	12	29	8	10	12	30
39	1	6	8	11	25	7	9	12	28	.	.	.	.
40	1	8	9	12	29	9	9	12	30	8	9	12	29
41	1	9	10	12	31	8	11	11	30	7	10	11	28
42	1	5	8	9	22	7	7	11	25	5	7	10	22
43	1	8	9	9	26	8	9	12	29	.	.	.	.
44	1	8	8	9	25	8	11	10	29	.	.	.	.
45	1	5	7	9	21	7	9	9	25	.	.	.	.
46	0	2	3	3	8	.	.	.	.	.	.	.	.
47	0	1	2	1	4	.	.	.	.	.	.	.	.
48	0	0	3	1	4	.	.	.	.	.	.	.	.
49	0	0	2	0	2	.	.	.	.	.	.	.	.
50	0	1	6	4	11	.	.	.	.	.	.	.	.
51	0	3	4	1	8	.	.	.	.	.	.	.	.
52	0	0	2	2	4	.	.	.	.	.	.	.	.
53	0	2	0	1	3	.	.	.	.	.	.	.	.
54	0	5	4	3	12	.	.	.	.	.	.	.	.

Appendix E4
Coded Demographic Information

The codes are as follows: H1=HAVEPIGS, H2=HADPIGS, R=READOWR, C=CURRWORK, M1=MALEINF, M2=MALEYC, M3=MALEC, M4=MALEOC, M5=MALEA, MT=MALETOT, F1=FEMINF, F2=FEMYC, F3=FEMC, F4=FEMOC, F5=FEMA, FT=FEMTOT, FN1=FNFINF, FN2=FNFC, FN3=FNFOLD, MN1=MNFINF, MN2=MNFC, MN3=MNFOLD.

Appendix E4
Demographic Information
(see half page for codes)

ID	VILLAGE	TRIP	SOCIO	AGE	MARITAL
1	4	1	1	5	3
2	4	0	1	3	3
3	4	0	1	4	3
4	4	2	1	2	3
5	4	0	1	7	1
6	4	0	0	6	3
7	4	0	0	5	3
8	4	0	0	4	3
9	4	0	0	4	2
10	4	0	0	6	3
11	4	0	0	1	1
12	4	0	0	4	3
13	4	0	0	6	3
14	4	1	0	6	5
15	3	1	1	7	3
16	3	0	0	.	.
17	3	1	1	7	1
18	3	2	2	1	3
19	3	0	1	3	3
20	3	0	0	.	.
21	3	0	0	3	3
22	3	0	0	3	3
23	3	2	0	8	5
24	3	1	1	8	4
25	3	0	0	4	3
26	3	0	0	2	3
27	3	0	0	.	.
28	3	0	0	6	.
29	2	2	1	0	5
30	2	2	1	4	3
31	2	1	1	5	3
32	2	0	1	.	.
33	2	2	1	4	3
34	2	0	0	4	4
35	2	0	0	8	5
36	2	0	0	5	2
37	2	0	0	6	2
38	1	2	1	4	6
39	1	0	1	5	6
40	1	2	1	3	2
41	1	1	1	4	2
42	1	1	1	4	2
43	1	0	0	4	2
44	1	0	0	7	2
45	1	0	0	9	2
46	0	0	0	6	5
47	0	0	0	2	1
48	0	0	0	3	1
49	0	0	0	4	2
50	0	0	0	5	3
51	0	0	0	3	3
52	0	0	0	3	3
53	0	0	0	3	3
54	0	0	0	4	3

ID	H1	H2	R	C	M1	M2	M3	M4	M5	MT	F1	F2	F3	F4	F5	FT	FN1	FN2	FN3	MN1	MN2	MN3
1	2	2	7	0	1	1	0	1	0	0	0	0	2	0	0	2	0	0	0	0	0	0
2	1	5	3	3	0	1	1	0	0	2	1	0	1	0	0	2	0	0	0	0	0	1
3	2	1	2	9	1	0	1	0	0	2	0	1	0	0	0	1	0	0	0	0	0	1
4	1	3	5	8	0	2	0	0	0	2	0	0	0	0	0	0	0	0	1	0	0	1
5	1	1	9	4	0	0	2	0	0	2	0	0	0	1	0	1	0	0	0	0	0	0
6	3	3	3	5	0	1	1	0	1	3	0	0	0	1	2	3	0	0	0	0	0	1
7	1	2	8	0	0	1	2	1	0	3	0	0	0	2	1	3	0	0	0	0	0	1
8	4	1	7	0	1	1	0	2	0	4	0	0	0	0	1	1	0	2	2	0	0	1
9	1	7	4	0	3	0	1	1	0	3	0	0	0	0	2	2	0	0	0	0	0	1
10	3	4	7	6	0	0	2	1	0	3	0	1	0	0	2	3	1	3	1	0	0	1
11	1	1	3	8	0	0	0	0	0	0	0	0	0	0	0	0	1	3	3	0	2	2
12	2	1	7	0	1	0	0	2	0	3	0	0	0	2	0	2	0	0	1	0	0	2
13	1	2	7	6	0	0	2	0	1	4	0	0	0	0	0	0	0	0	0	0	0	1
14	1	3	9	9	0	1	0	3	1	0	5	0	0	1	0	0	1	0	0	0	0	0
15	2	2	2	7	6	0	0	1	3	0	4	0	0	0	0	0	1	0	0	0	0	2
16	1	3	3	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
17	1	1	2	0	0	0	1	0	0	3	0	0	2	1	0	7	0	0	0	0	0	0
18	5	5	4	.	1	1	0	0	0	2	1	0	0	0	0	1	0	0	1	0	0	1
19	1	2	3	0	0	0	0	2	0	2	1	1	2	0	0	4	0	0	0	0	0	1
20	1	3	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
21	1	5	7	9	0	1	0	0	0	1	1	0	0	0	0	1	0	0	0	0	0	1
22	3	3	3	8	0	1	1	0	0	2	1	1	1	0	0	3	0	0	0	1	0	0
23	1	2	4	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24	1	2	2	9	0	0	1	1	1	4	0	0	1	1	0	3	1	0	1	0	0	0
25	1	7	7	6	0	1	1	2	0	4	1	0	0	0	0	1	0	0	0	0	0	1
26	1	2	9	8	1	1	1	0	0	3	0	0	0	0	0	0	0	0	0	0	0	1
27	1	7	7	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
28	2	2	8	9	8	1	2	1	1	5	1	1	0	2	0	4	1	0	0	0	0	1
29	1	2	6	3	0	0	0	2	1	4	0	0	0	1	0	1	0	0	0	0	0	1
30	1	3	3	0	0	0	2	0	0	2	0	0	0	2	0	2	0	0	0	0	0	2
31	1	2	4	5	1	0	1	5	0	0	0	1	0	1	0	2	0	0	0	0	0	1
32	1	2	9	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
33	1	2	3	9	0	0	1	0	0	1	1	0	1	3	0	4	0	0	0	0	0	0
34	2	3	7	.	0	0	2	0	0	2	1	2	1	0	0	4	0	0	2	0	0	1
35	1	3	7	7	0	0	0	0	0	1	1	0	2	2	0	5	0	1	2	1	0	1
36	1	2	3	5	0	0	1	1	0	3	0	0	2	1	0	3	0	0	1	0	0	1
37	1	1	7	0	0	1	3	0	0	4	2	1	0	0	0	3	0	0	0	0	0	1
38	1	1	2	0	0	0	1	0	0	5	0	0	1	1	0	3	0	0	0	0	0	1
39	1	2	3	0	1	1	0	0	0	2	0	0	1	0	0	1	0	0	0	0	0	2
40	1	2	4	0	0	0	1	0	0	1	0	1	0	0	0	1	0	0	1	0	0	1
41	7	7	3	3	0	1	3	2	0	0	1	0	2	0	0	3	0	0	1	0	0	2
42	1	7	3	2	1	1	1	2	0	5	0	0	0	0	0	0	0	0	0	0	0	1
43	1	2	7	9	0	1	0	0	0	1	0	0	1	3	0	4	0	0	0	0	0	1
44	1	5	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
45	2	2	7	2	0	0	1	0	1	2	0	0	0	0	0	0	0	0	0	0	0	2
46	2	2	9	0	1	2	1	1	0	4	1	0	2	3	0	7	0	0	0	0	0	1
47	1	2	9	0	0	1	0	0	0	1	0	0	1	0	0	1	0	0	0	0	0	0
48	2	2	9	0	0	0	0	0	0	0	0	0	1	1	0	2	0	1	3	0	0	3
49	1	1	7	0	1	1	1	1	0	4	0	1	1	0	0	3	0	0	0	0	0	1
50	1	3	7	0	1	1	0	1	0	3	0	0	2	0	0	2	0	0	0	0	0	1
51	5	1	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
52	1	2	7	0	1	0	1	0	0	2	0	1	1	1	0	3	0	0	0	0	0	1
53	1	1	9	0	2	0	0	0	0	2	0	2	1	0	0	3	0	0	0	0	0	1
54	1	2	9	0	0	0	0	0	0	0	0	0	0	2	0	2	0	0	0	0	0	1

APPENDIX F

Total Mean Scores for SSLP Women (Excluding Trip 1 Women)

With regard to the questionnaire scores at T1, ATB = total score on breeding questions, ATS = total score on sows, ATP = total score on piglet questions and ATOT = total score on questionnaire.

With regard to the questionnaire scores at T2, BTB = total score on breeding questions, BTS = total score on sows, BTP = total score on piglet questions and BTOT = total score on questionnaire.

With regard to the questionnaire scores at T3, CTB = total score on breeding questions, CTS = total score on sows, CTP = total score on piglet questions and CTOT = total score on questionnaire.

Appendix F1

The Total Mean Scores for SSLP Women at T1, T2 and T3

(see half title page for codes)

VARIABLE	N	MEAN	STANDARD DEVIATION	MINIMUM VALUE	MAXIMUM VALUE	STD ERROR OF MEAN	SUM	VARIANCE	C.V.
ATB	32	4.90625000	2.29106786	0.00000000	8.00000000	0.40508748	157.00000000	5.24899194	46.697
ATS	32	5.25000000	2.32795078	1.00000000	9.00000000	0.41152743	168.00000000	5.41935484	44.342
ATP	32	5.75000000	2.82842712	1.00000000	12.00000000	0.50000000	184.00000000	8.00000000	49.190
ATOT	32	15.90625000	6.13482589	4.00000000	28.00000000	1.08449425	509.00000000	37.63608871	38.569
BTB	32	6.12500000	1.51870063	3.00000000	9.00000000	0.26847088	196.00000000	2.30645161	24.795
BTS	32	8.28125000	2.05150417	3.00000000	11.00000000	0.36265813	265.00000000	4.20866935	24.773
BTP	32	9.25000000	2.15526362	4.00000000	12.00000000	0.38110038	296.00000000	4.64516129	23.300
BTOT	32	23.65625000	4.42579955	13.00000000	30.00000000	0.78237822	757.00000000	19.58770161	18.709
CTB	8	7.25000000	1.03509834	6.00000000	8.00000000	0.36596253	58.00000000	1.07142857	14.277
CTS	8	9.62500000	0.91612538	8.00000000	11.00000000	0.32389923	77.00000000	0.83928571	9.518
CTP	8	10.37500000	1.30247018	9.00000000	12.00000000	0.46049275	83.00000000	1.69642257	12.554
CTOT	8	27.25000000	2.37546988	25.00000000	30.00000000	0.83985543	218.00000000	5.64285714	8.717

When One is Correct

VARIABLE	N	MEAN	STANDARD DEVIATION	MINIMUM VALUE	MAXIMUM VALUE	STD ERROR OF MEAN	SUM	VARIANCE	C.V.
ATB	32	5.34375000	2.19397084	0.00000000	9.00000000	0.33784292	171.00000000	4.81350806	41.057
ATS	32	6.75000000	2.60272810	2.00000000	11.00000000	0.46010167	216.00000000	6.77419355	38.559
ATP	32	6.75000000	3.18261406	1.00000000	12.00000000	0.56261230	216.00000000	10.12903226	47.150
ATOT	32	18.84375000	6.58497496	5.00000000	31.00000000	1.16407011	603.00000000	43.36189516	34.945
BTB	32	6.21875000	1.53946734	3.00000000	9.00000000	0.27214195	199.00000000	2.36995968	24.755
BTS	32	8.93750000	1.86543258	3.00000000	11.00000000	0.32976501	286.00000000	3.47983871	20.872
BTP	32	9.96875000	2.15245845	4.00000000	12.00000000	0.37696896	319.00000000	4.54737903	21.591
BTOT	32	25.12500000	4.36074868	13.00000000	30.00000000	0.77087874	804.00000000	19.01612903	17.356
CTB	8	7.37500000	1.18773494	6.00000000	9.00000000	0.41992771	59.00000000	1.41071429	16.105
CTS	8	10.62500000	0.74402381	9.00000000	11.00000000	0.26305214	85.00000000	0.55357143	7.003
CTP	8	10.75000000	1.28173989	9.00000000	12.00000000	0.45316348	86.00000000	1.64285714	11.923
CTOT	8	28.75000000	1.83225076	25.00000000	31.00000000	0.64779847	230.00000000	3.35714286	6.373

When One and Two are Correct

VARIABLE	N	MEAN	STANDARD DEVIATION	MINIMUM VALUE	MAXIMUM VALUE	STD ERROR OF MEAN	SUM	VARIANCE	C.V.
ATB	32	5.12500000	2.15151859	1.00000000	8.00000000	0.38033835	164.00000000	4.62903226	41.981
ATS	32	6.34375000	2.00980466	3.00000000	10.00000000	0.35528661	203.00000000	4.03931452	31.682
ATP	32	6.56250000	2.48787382	3.00000000	12.00000000	0.43979811	210.00000000	6.18951613	37.910
ATOT	32	18.03125000	5.56767384	7.00000000	29.00000000	0.98423498	577.00000000	30.99899194	30.878
BTB	32	6.28125000	1.61113815	3.00000000	9.00000000	0.28481168	201.00000000	2.59576613	25.650
BTS	32	8.78125000	1.80919471	4.00000000	11.00000000	0.31982346	281.00000000	3.27318548	20.605
BTP	32	9.68750000	1.83931088	5.00000000	12.00000000	0.32514730	310.00000000	3.38306452	18.986
BTOT	32	24.75000000	4.11135328	14.00000000	30.00000000	0.72679145	792.00000000	16.90322581	16.612
CTB	8	7.37500000	0.91612538	6.00000000	8.00000000	0.32389923	59.00000000	0.83928571	12.422
CTS	8	9.50000000	0.92582010	8.00000000	11.00000000	0.32732684	76.00000000	0.85714286	9.745
CTP	8	10.50000000	1.19522861	9.00000000	12.00000000	0.42257713	84.00000000	1.42857143	11.383
CTOT	8	27.37500000	1.99553072	25.00000000	30.00000000	0.70552665	219.00000000	3.98214286	7.290

When One and Three are Correct

Appendix F2

Levels of Significance of Scores at T1, T2 and T3
(See half title page for codes)

VARIABLE	T	PR>|T|
ATOT	14.67	0.0001
BTOT	30.24	0.0001
ATB	12.11	0.0001
BTB	22.81	0.0001
ATS	12.76	0.0001
BTS	22.83	0.0001
ATP	11.50	0.0001
BTP	24.28	0.0001

VARIABLE	T	PR>|T|
ATOT	16.19	0.0001
BTOT	32.59	0.0001
ATB	13.78	0.0001
BTB	22.85	0.0001
ATS	14.67	0.0001
BTS	27.10	0.0001
ATP	12.00	0.0001
BTP	26.44	0.0001

VARIABLE	T	PR>|T|
ATOT	18.32	0.0001
BTOT	34.05	0.0001
ATB	13.47	0.0001
BTB	22.05	0.0001
ATS	17.86	0.0001
BTS	27.46	0.0001
ATP	14.92	0.0001
BTP	29.79	0.0001

APPENDIX G

Mean score of questionnaire at T1, T2 and T3, by village

With regard to the questionnaire scores at T1, ATB = total score on breeding questions, ATS = total score on sows, ATP = total score on piglet questions and ATOT = total score on questionnaire.

With regard to the questionnaire scores at T2, BTB = total score on breeding questions, BTS = total score on sows, BTP = total score on piglet questions and BTOT = total score on questionnaire.

With regard to the questionnaire scores at T3, CTB = total score on breeding questions, CTS = total score on sows, CTP = total score on piglet questions and CTOT = total score on questionnaire.

Appendix G1
When One is Correct

VARIABLE	N	MEAN	STANDARD DEVIATION	MINIMUM VALUE	MAXIMUM VALUE	STD ERROR OF MEAN	SUM	VARIANCE	C.V.
VILLAGE=1									
ATB	8	7.00000000	1.77281052	4.00000000	9.00000000	0.62678317	56.00000000	3.14285714	25.326
ATS	8	8.12500000	1.24642349	6.00000000	10.00000000	0.44067724	65.00000000	1.55357143	15.341
ATP	8	9.87500000	1.64208856	8.00000000	12.00000000	0.58035315	79.00000000	2.69642857	16.629
ATOT	8	25.00000000	3.66450153	20.00000000	31.00000000	1.29559694	200.00000000	13.42857143	14.658
BTB	8	7.12500000	0.99103121	6.00000000	9.00000000	0.35038244	57.00000000	0.98214286	13.909
BTS	8	9.00000000	0.92582010	7.00000000	10.00000000	0.32732684	72.00000000	0.85714286	10.287
BTP	8	10.75000000	1.66904592	7.00000000	12.00000000	0.59009684	86.00000000	2.78571429	15.526
BTOT	8	26.87500000	2.74837614	22.00000000	30.00000000	0.97169770	215.00000000	7.55357143	10.227
CTB	4	7.00000000	1.41421356	5.00000000	8.00000000	0.70710678	28.00000000	2.00000000	20.203
CTS	4	9.00000000	1.41421356	7.00000000	10.00000000	0.70710678	36.00000000	2.00000000	15.713
CTP	4	11.00000000	1.15470054	10.00000000	12.00000000	0.57735027	44.00000000	1.33333333	10.497
CTOT	4	27.00000000	3.82970843	22.00000000	30.00000000	1.91485422	108.00000000	14.66666667	14.184
VILLAGE=2									
ATB	8	4.87500000	2.47487373	1.00000000	8.00000000	0.87500000	39.00000000	6.12500000	50.767
ATS	8	3.87500000	1.55264751	2.00000000	7.00000000	0.54894379	31.00000000	2.41071429	40.068
ATP	8	5.25000000	1.98206242	1.00000000	8.00000000	0.70076489	42.00000000	3.92857143	37.754
ATOT	8	14.00000000	3.96412484	8.00000000	19.00000000	1.40152978	112.00000000	15.71428571	28.315
BTB	8	7.12500000	1.12599163	5.00000000	8.00000000	0.39809816	57.00000000	1.26785714	15.803
BTS	8	8.00000000	1.69030851	5.00000000	10.00000000	0.59761430	64.00000000	2.85714286	21.129
BTP	8	9.12500000	1.35620268	7.00000000	11.00000000	0.47949006	73.00000000	1.83928571	14.862
BTOT	8	24.25000000	3.01188123	20.00000000	29.00000000	1.06486082	194.00000000	9.07142857	12.420
CTB	4	7.50000000	1.00000000	6.00000000	8.00000000	0.50000000	30.00000000	1.00000000	13.333
CTS	4	8.75000000	1.70782513	7.00000000	11.00000000	0.85391256	35.00000000	2.91666667	19.518
CTP	4	9.75000000	0.95742711	9.00000000	11.00000000	0.47871355	39.00000000	0.91666667	9.820
CTOT	4	26.00000000	2.94392029	23.00000000	30.00000000	1.47196014	104.00000000	8.66666667	11.323
VILLAGE=3									
ATB	11	4.00000000	1.61245155	2.00000000	7.00000000	0.48617243	44.00000000	2.60000000	40.311
ATS	11	5.18181818	1.60113596	3.00000000	8.00000000	0.48276066	57.00000000	2.56363636	30.899
ATP	11	4.90909091	2.07165096	1.00000000	8.00000000	0.62456596	54.00000000	4.29090909	42.196
ATOT	11	14.09090909	2.80907620	10.00000000	19.00000000	0.84696834	155.00000000	7.89090909	19.935
BTB	11	6.00000000	0.89442719	4.00000000	7.00000000	0.26967994	66.00000000	0.80000000	14.907
BTS	11	9.09090909	1.44599761	7.00000000	11.00000000	0.43598468	100.00000000	2.09090909	15.906
BTP	11	10.09090909	0.83120941	9.00000000	11.00000000	0.25061907	111.00000000	0.69090909	8.237
BTOT	11	25.18181818	2.04049905	21.00000000	28.00000000	0.61523361	277.00000000	4.16363636	8.103
CTB	5	6.40000000	0.54772256	6.00000000	7.00000000	0.24494897	32.00000000	0.30000000	8.558
CTS	5	7.60000000	2.50998008	5.00000000	10.00000000	1.12249722	38.00000000	6.30000000	33.026
CTP	5	9.00000000	1.22474487	8.00000000	11.00000000	0.54772256	45.00000000	1.50000000	13.608
CTOT	5	23.00000000	2.91547595	20.00000000	27.00000000	1.30384048	115.00000000	8.50000000	12.676
VILLAGE=4									
ATB	13	4.46153846	2.48192231	0.00000000	8.00000000	0.66617339	58.00000000	5.76923077	53.836
ATS	13	4.38461538	2.39925202	1.00000000	9.00000000	0.66543278	57.00000000	5.75641026	54.720
ATP	13	4.38461538	2.21888078	1.00000000	9.00000000	0.61538462	57.00000000	4.92307692	50.604
ATOT	13	13.23076923	5.89001763	4.00000000	24.00000000	1.63359697	172.00000000	34.69230769	44.518
BTB	13	5.46153846	1.71344687	3.00000000	8.00000000	0.47522444	71.00000000	2.93589744	31.373
BTS	13	7.15384615	2.57701875	3.00000000	11.00000000	0.71473640	93.00000000	6.64102564	36.023
BTP	13	8.53846154	2.75727476	4.00000000	12.00000000	0.76473043	111.00000000	7.60256410	32.292
BTOT	13	21.15384615	5.39824283	13.00000000	28.00000000	1.49720318	275.00000000	29.14102564	25.519
CTB	3	6.00000000	1.00000000	5.00000000	7.00000000	0.57735027	18.00000000	1.00000000	16.667
CTS	3	6.33333333	2.51661148	4.00000000	9.00000000	1.45296431	19.00000000	6.33333333	39.736
CTP	3	9.33333333	2.08166600	7.00000000	11.00000000	1.20185043	28.00000000	4.33333333	22.304
CTOT	3	21.66666667	4.93288286	16.00000000	25.00000000	2.84888125	65.00000000	24.33333333	22.767

Appendix G1
When One is Correct

VARIABLE	N	MEAN	STANDARD DEVIATION	MINIMUM VALUE	MAXIMUM VALUE	STD ERROR OF MEAN	SUM	VARIANCE	C.V.
VILLAGE=0									
ATB	9	1.11111111	1.61589329	0.00000000	5.00000000	0.53863110	10.00000000	2.61111111	145.430
ATS	9	2.33333333	1.50000000	0.00000000	5.00000000	0.50000000	21.00000000	2.25000000	64.286
ATP	9	1.44444444	1.42408062	0.00000000	4.00000000	0.47466687	13.00000000	2.02777778	98.585
ATOT	9	4.88888889	3.48010217	1.00000000	10.00000000	1.16003406	44.00000000	12.11111111	71.184
BTB	0	.	.	.	.	.	.	.	.
BTS	0	.	.	.	.	.	.	.	.
BTP	0	.	.	.	.	.	.	.	.
BTOT	0	.	.	.	.	.	.	.	.
CTB	0	.	.	.	.	.	.	.	.
CTS	0	.	.	.	.	.	.	.	.
CTP	0	.	.	.	.	.	.	.	.
CTOT	0	.	.	.	.	.	.	.	.

VARIABLE	N	MEAN	STANDARD DEVIATION	MINIMUM VALUE	MAXIMUM VALUE	STD ERROR OF MEAN	SUM	VARIANCE	C.V.
TRIP=0									
ATB	33	3.90909091	2.70836247	0.00000000	8.00000000	0.47146539	129.00000000	7.33522727	69.284
ATS	33	4.27272727	2.41444516	0.00000000	9.00000000	0.42036095	141.00000000	5.82954545	56.508
ATP	33	4.60606061	2.98893160	0.00000000	11.00000000	0.52038621	152.00000000	8.93371212	64.891
ATOT	33	12.78787879	7.11405992	1.00000000	25.00000000	1.23839887	422.00000000	50.60984848	55.631
BTB	24	6.00000000	1.38312815	3.00000000	8.00000000	0.28232985	144.00000000	1.91304348	23.052
BTS	24	7.87500000	2.11233438	3.00000000	11.00000000	0.43117845	189.00000000	4.46195652	26.823
BTP	24	9.08333333	2.30154328	4.00000000	12.00000000	0.46980055	218.00000000	5.29710145	25.338
BTOT	24	22.95833333	4.52589188	13.00000000	28.00000000	0.92368035	551.00000000	20.47644928	19.710
CTB	0	.	.	.	.	.	.	.	.
CTS	0	.	.	.	.	.	.	.	.
CTP	0	.	.	.	.	.	.	.	.
CTOT	0	.	.	.	.	.	.	.	.
TRIP=1									
ATB	8	5.00000000	2.50713268	2.00000000	9.00000000	0.88640526	40.00000000	6.28571429	50.143
ATS	8	5.25000000	2.54950976	3.00000000	10.00000000	0.90138782	42.00000000	6.50000000	48.562
ATP	8	6.00000000	3.16227766	3.00000000	12.00000000	1.11803399	48.00000000	10.00000000	52.705
ATOT	8	16.25000000	7.08420390	10.00000000	31.00000000	2.50535142	130.00000000	50.21428571	43.607
BTB	8	6.87500000	0.83452296	6.00000000	8.00000000	0.29504842	55.00000000	0.69642857	12.139
BTS	8	8.00000000	1.85164020	5.00000000	10.00000000	0.65465367	64.00000000	3.42857143	23.146
BTP	8	10.62500000	0.74402381	9.00000000	11.00000000	0.26305214	85.00000000	0.55357143	7.003
BTOT	8	25.50000000	3.07559759	20.00000000	29.00000000	1.08762030	204.00000000	9.42857143	12.062
CTB	8	6.25000000	0.88640526	5.00000000	7.00000000	0.31339159	50.00000000	0.78571429	14.182
CTS	8	6.37500000	1.68501802	4.00000000	9.00000000	0.59574383	51.00000000	2.83928571	26.432
CTP	8	9.12500000	1.35620268	7.00000000	11.00000000	0.47949884	73.00000000	1.83928571	14.862
CTOT	8	21.75000000	2.96407056	16.00000000	26.00000000	1.04795720	174.00000000	8.78571429	13.628
TRIP=2									
ATB	8	4.75000000	2.54950976	1.00000000	8.00000000	0.90138782	38.00000000	6.50000000	53.674
ATS	8	6.00000000	2.39045722	2.00000000	9.00000000	0.84515425	48.00000000	5.71428571	39.841
ATP	8	5.62500000	3.81491434	1.00000000	12.00000000	1.34877590	45.00000000	14.55357143	67.821
ATOT	8	16.37500000	7.68927825	5.00000000	28.00000000	2.71857040	131.00000000	59.12500000	46.957
BTB	8	6.50000000	1.92724822	3.00000000	9.00000000	0.68138514	52.00000000	3.71428571	29.638
BTS	8	9.50000000	1.38438734	7.00000000	11.00000000	0.48921983	76.00000000	1.71428571	13.782
BTP	8	9.75000000	1.66904542	8.00000000	12.00000000	0.59009684	78.00000000	2.78571429	17.118
BTOT	8	25.75000000	3.57571172	20.00000000	30.00000000	1.26420580	206.00000000	12.78571429	13.886
CTB	8	7.25000000	1.03509834	6.00000000	8.00000000	0.36596253	58.00000000	1.07142857	14.277
CTS	8	9.62500000	0.91612538	8.00000000	11.00000000	0.32389923	77.00000000	0.83928571	9.518
CTP	8	10.37500000	1.30247018	9.00000000	12.00000000	0.46045275	83.00000000	1.69642857	12.554
CTOT	8	27.25000000	2.37546988	25.00000000	30.00000000	0.83965543	218.00000000	5.64285714	8.717

Appendix G2
When One and Two are Correct

VARIABLE	N	MEAN	STANDARD DEVIATION	MINIMUM VALUE	MAXIMUM VALUE	STD ERROR OF MEAN	SUM	VARIANCE	C.V.
VILLAGE=1									
ATB	8	7.12500000	1.88509189	4.00000000	9.00000000	0.66648863	57.00000000	3.55357143	26.457
ATS	8	9.75000000	1.58113883	7.00000000	11.00000000	0.55901699	78.00000000	2.50000000	16.217
ATP	8	11.12500000	0.99103121	9.00000000	12.00000000	0.35038244	89.00000000	0.98214286	8.908
ATOT	8	28.00000000	2.97609524	23.00000000	32.00000000	1.05220856	224.00000000	8.85714286	10.629
BTB	8	7.12500000	0.99103121	6.00000000	9.00000000	0.35038244	57.00000000	0.98214286	13.909
BTS	8	9.75000000	0.88640526	9.00000000	11.00000000	0.31339159	78.00000000	0.78571429	9.091
BTP	8	11.12500000	1.35620268	8.00000000	12.00000000	0.47949086	89.00000000	1.83928571	12.191
BTOT	8	28.00000000	2.50713268	23.00000000	30.00000000	0.88640526	224.00000000	6.28571429	8.954
CTB	4	7.50000000	0.57735027	7.00000000	8.00000000	0.28867513	30.00000000	0.33333333	7.698
CTS	4	9.75000000	0.95742711	9.00000000	11.00000000	0.47871355	39.00000000	0.91666667	9.820
CTP	4	11.00000000	1.15470054	10.00000000	12.00000000	0.57735027	44.00000000	1.33333333	10.497
CTOT	4	28.25000000	2.62995564	26.00000000	31.00000000	1.31497782	113.00000000	6.91666667	9.310
VILLAGE=2									
ATB	8	5.62500000	1.59798981	4.00000000	8.00000000	0.56497471	45.00000000	2.55357143	28.409
ATS	8	6.12500000	1.80772153	4.00000000	9.00000000	0.63912608	49.00000000	3.26785714	29.514
ATP	8	6.00000000	2.32992949	1.00000000	9.00000000	0.82375467	48.00000000	5.42857143	38.832
ATOT	8	17.75000000	3.84521967	12.00000000	22.00000000	1.35969045	142.00000000	14.78571429	21.663
BTB	8	7.25000000	1.28173939	5.00000000	9.00000000	0.45316348	58.00000000	1.64285714	17.679
BTS	8	8.87500000	1.64208856	6.00000000	11.00000000	0.58056315	71.00000000	2.69642857	18.502
BTP	8	9.75000000	1.48806762	8.00000000	12.00000000	0.52618423	78.00000000	2.21428571	15.262
BTOT	8	25.87500000	3.75832409	21.00000000	32.00000000	1.32876325	207.00000000	14.12500000	14.525
CTB	4	7.75000000	1.25830574	6.00000000	9.00000000	0.62915287	31.00000000	1.58333333	16.236
CTS	4	10.25000000	1.50000000	8.00000000	11.00000000	0.75000000	41.00000000	2.25000000	14.634
CTP	4	10.25000000	1.50000000	9.00000000	12.00000000	0.75000000	41.00000000	2.25000000	14.634
CTOT	4	28.25000000	1.70782513	26.00000000	30.00000000	0.85391256	113.00000000	2.91666667	6.045
VILLAGE=3									
ATB	11	4.36363636	1.85864075	2.00000000	7.00000000	0.56048127	48.00000000	3.45454545	42.594
ATS	11	6.45454545	2.11488233	4.00000000	11.00000000	0.63766102	71.00000000	4.47272727	32.766
ATP	11	6.45454545	2.25227158	3.00000000	10.00000000	0.67908543	71.00000000	5.07272727	34.896
ATOT	11	17.27272727	3.82337309	11.00000000	25.00000000	1.15279036	190.00000000	14.61818182	22.135
BTB	11	6.36363636	1.12006493	4.00000000	8.00000000	0.33771228	70.00000000	1.25454545	17.601
BTS	11	9.90909091	1.04446594	8.00000000	11.00000000	0.31491833	109.00000000	1.09090909	10.540
BTP	11	11.36363636	0.80903983	10.00000000	12.00000000	0.24393669	125.00000000	0.65454545	7.120
BTOT	11	27.63636364	1.80483588	24.00000000	30.00000000	0.54393728	304.00000000	3.25454545	6.528
CTB	5	6.40000000	0.54772256	6.00000000	7.00000000	0.24496897	32.00000000	0.30000000	8.558
CTS	5	8.40000000	2.60768096	5.00000000	11.00000000	1.16619038	42.00000000	6.80000000	31.044
CTP	5	10.20000000	1.30384048	9.00000000	12.00000000	0.58309519	51.00000000	1.70000000	12.783
CTOT	5	25.00000000	3.24037035	22.00000000	29.00000000	1.44913767	125.00000000	10.50000000	12.961
VILLAGE=4									
ATB	13	4.84615385	2.51151196	0.00000000	8.00000000	0.69656809	63.00000000	6.30769231	51.825
ATS	13	5.69230769	2.65783795	2.00000000	10.00000000	0.73715162	74.00000000	7.06410256	46.692
ATP	13	5.23076923	2.89118909	1.00000000	12.00000000	0.80187158	68.00000000	8.35897436	55.273
ATOT	13	15.76923077	6.64772951	5.00000030	28.00000000	1.84374863	205.00000000	44.19230769	42.156
BTB	13	5.53846154	1.76140969	3.00000000	8.00000000	0.48852715	72.00000000	3.1025e410	31.803
BTS	13	7.76923077	2.27866358	4.00000000	11.00000000	0.63198757	101.00000000	5.19230769	29.329
BTP	13	9.15384615	2.70327637	5.00000000	12.00000000	0.74975361	119.00000000	7.30769231	29.532
BTOT	13	22.46153846	5.07634029	14.00000000	28.00000000	1.40792348	292.00000000	25.76923077	22.600
CTB	3	6.33333333	0.57735027	6.00000000	7.00000000	0.33333333	19.00000000	0.33333333	9.116
CTS	3	7.33333333	1.52752523	6.00000000	9.00000000	0.88191710	22.00000000	2.33333333	20.830
CTP	3	10.00000000	2.00000000	8.00000000	12.00000000	1.15470054	30.00000000	4.00000000	20.000
CTOT	3	23.66666667	3.21455025	20.00000000	26.00000000	1.85592145	71.00000000	10.33333333	13.583

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Appendix G2
When One and Two are Correct

VARIABLE	N	MEAN	STANDARD DEVIATION	MINIMUM VALUE	MAXIMUM VALUE	STD ERROR OF MEAN	SUM	VARIANCE	C.V.
VILLAGE=0									
ATB	9	1.22222222	1.92209377	0.00000000	4.00000000	0.64069792	11.00000000	3.69444444	157.262
ATS	9	2.77777778	1.78730088	0.00000000	6.00000000	0.59576696	25.00000000	3.19444444	64.343
ATP	9	1.55555556	1.58989867	0.00000000	4.00000000	0.52996622	14.00000000	2.52777778	102.208
ATOT	9	5.55555556	4.30439052	1.00000000	13.00000000	1.43479684	50.00000000	18.52777778	77.479
BTB	0	.	.	.	.	.	.	.	.
BTS	0	.	.	.	.	.	.	.	.
BTP	0	.	.	.	.	.	.	.	.
BTOT	0	.	.	.	.	.	.	.	.
CTB	0	.	.	.	.	.	.	.	.
CTS	0	.	.	.	.	.	.	.	.
CTP	0	.	.	.	.	.	.	.	.
CTOT	0	.	.	.	.	.	.	.	.

VARIABLE	N	MEAN	STANDARD DEVIATION	MINIMUM VALUE	MAXIMUM VALUE	STD ERROR OF MEAN	SUM	VARIANCE	C.V.
TRIP=0									
ATB	33	4.15151515	2.81870108	0.00000000	9.00000000	0.49067288	137.00000000	7.94507576	67.896
ATS	33	5.48484848	2.85176713	0.00000000	11.00000000	0.49642894	181.00000000	8.13257576	51.994
ATP	33	5.45454545	3.58896668	0.00000000	12.00000000	0.62475891	180.00000000	12.88068182	65.798
ATOT	33	15.09090909	8.24000772	1.00000000	29.00000000	1.43440123	498.00000000	67.89772727	54.602
BTB	24	6.12500000	1.42378858	3.00000000	8.00000000	0.29062963	147.00000000	2.02717391	23.246
BTS	24	8.58333333	1.95418540	4.00000000	11.00000000	0.39889642	206.00000000	3.81884058	22.767
BTP	24	9.87500000	2.30900882	5.00000000	12.00000000	0.47132445	237.00000000	5.33152174	23.382
BTOT	24	24.58333333	4.55799982	14.00000000	29.00000000	0.93039782	590.00000000	20.77536232	18.541
CTB	0	.	.	.	.	.	.	.	.
CTS	0	.	.	.	.	.	.	.	.
CTP	0	.	.	.	.	.	.	.	.
CTOT	0	.	.	.	.	.	.	.	.
TRIP=1									
ATB	8	5.25000000	2.49284691	2.00000000	9.00000000	0.88135448	42.00000000	6.21428571	47.483
ATS	8	7.00000000	2.67261242	4.00000000	11.00000000	0.94491118	56.00000000	7.14285714	38.180
ATP	8	7.50000000	3.07059789	4.00000000	12.00000000	1.08562030	60.00000000	9.42857143	40.941
ATOT	8	19.75000000	6.77786215	11.00000000	32.00000000	2.39605330	158.00000000	45.92857143	34.314
BTB	8	7.25000000	1.03509834	6.00000000	9.00000000	0.36596253	58.00000000	1.07142857	14.277
BTS	8	9.12500000	1.80772153	6.00000000	11.00000000	0.63912608	73.00000000	3.26785714	19.811
BTP	8	11.50000000	0.75592895	10.00000000	12.00000000	0.26726124	92.00000000	0.57142857	6.573
BTOT	8	27.87500000	3.09888522	23.00000000	32.00000000	1.09279295	223.00000000	9.55357143	11.088
CTB	8	6.62500000	0.51754917	6.00000000	7.00000000	0.18298126	53.00000000	0.26785714	7.812
CTS	8	7.37500000	1.40788595	5.00000000	9.00000000	0.49776285	59.00000000	1.98214286	19.090
CTP	8	10.00000000	1.41421356	8.00000000	12.00000000	0.50000000	80.00000000	2.00000000	14.142
CTOT	8	24.00000000	2.32992949	20.00000000	26.00000000	0.82375447	192.00000000	5.42857143	9.708
TRIP=2									
ATB	8	5.62500000	2.06587927	2.00000000	8.00000000	0.73039842	45.00000000	4.26785714	36.727
ATS	8	7.50000000	2.92770822	4.00000000	11.00000000	1.03509834	60.00000000	8.57142857	39.036
ATP	8	6.25000000	3.91881986	2.00000000	12.00000000	1.38551177	50.00000000	15.35714286	62.701
ATOT	8	19.37500000	7.94512429	8.00000000	31.00000000	2.80982563	155.00000000	63.12500000	41.007
BTB	8	6.50000000	1.92724822	3.00000000	9.00000000	0.68138514	52.00000000	3.71428571	29.650
BTS	8	10.00000000	1.06904497	8.00000000	11.00000000	0.37796447	80.00000000	1.14285714	10.690
BTP	8	10.25000000	1.58113883	8.00000000	12.00000000	0.55901699	82.00000000	2.50000000	15.426
BTOT	8	26.75000000	3.45377648	21.00000000	30.00000000	1.22109436	214.00000000	11.92857143	12.911
CTB	8	7.37500000	1.18773494	6.00000000	9.00000000	0.41992771	59.00000000	1.41071429	16.105
CTS	8	10.62500000	0.74402381	9.00000000	11.00000000	0.26305214	85.00000000	0.55357143	7.003
CTP	8	10.75000000	1.28173989	9.00000000	12.00000000	0.45316348	86.00000000	1.64285714	11.923
CTOT	8	28.75000000	1.83225076	25.00000000	31.00000000	0.64779847	230.00000000	3.35714286	6.373

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Appendix G3
When One and Three are Correct

VARIABLE	N	MEAN	STANDARD DEVIATION	MINIMUM VALUE	MAXIMUM VALUE	STD ERROR OF MEAN	SUM	VARIANCE	C.V.
VILLAGE=1									
ATB	8	7.12500000	1.55264751	5.00000000	9.00000000	0.54894379	57.00000000	2.41071429	21.792
ATS	8	8.50000000	0.92582010	7.00000000	10.00000000	0.32732684	68.00000000	0.85714286	10.892
ATP	8	10.12500000	1.35620266	9.00000000	12.00000000	0.47949086	81.00000000	1.83928571	13.395
ATOT	8	25.75000000	3.32737563	21.00000000	31.00000000	1.17640496	206.00000000	11.07142857	12.922
BTB	8	7.62500000	0.74402381	7.00000000	9.00000000	0.26305214	61.00000000	0.55357143	9.758
BTS	8	9.37500000	1.30247018	7.00000000	11.00000000	0.46049275	75.00000000	1.69642857	13.893
BTP	8	11.12500000	1.12599163	9.00000000	12.00000000	0.39809816	89.00000000	1.26785714	10.121
BTOT	8	28.12500000	2.83180960	25.00000000	30.00000000	0.71807033	225.00000000	4.12500000	7.221
CTB	4	7.00000000	1.41421356	5.00000000	8.00000000	0.70710678	28.00000000	2.00000000	20.203
CTS	4	9.00000000	1.41421356	7.00000000	10.00000000	0.70710678	36.00000000	2.00000000	15.713
CTP	4	11.25000000	0.95742711	10.00000000	12.00000000	0.47871355	45.00000000	0.91666667	8.510
CTOT	4	27.25000000	3.59397644	22.00000000	30.00000000	1.79698822	109.00000000	12.91666667	13.189
VILLAGE=2									
ATB	8	5.50000000	2.32992949	2.00000000	8.00000000	0.82375467	44.00000000	5.42857143	42.362
ATS	8	5.50000000	1.19522861	4.00000000	7.00000000	0.42257713	44.00000000	1.42857143	21.731
ATP	8	6.62500000	1.76776695	4.00000000	9.00000000	0.62500000	53.00000000	3.12500000	26.683
ATOT	8	17.62500000	3.96187185	13.00000000	22.00000000	1.40073525	141.00000000	15.69642857	22.479
BTB	8	7.12500000	1.12599163	5.00000000	8.00000000	0.39809816	57.00000000	1.26785714	15.803
BTS	8	8.62500000	1.40788593	6.00000000	10.00000000	0.49776235	69.00000000	1.98214286	16.323
BTP	8	9.87500000	0.83452296	9.00000000	11.00000000	0.29504842	79.00000000	0.69642857	8.451
BTOT	8	25.62500000	2.55999442	22.00000000	29.00000000	0.90509471	205.00000000	6.55357143	9.990
CTB	4	7.50000000	1.00000000	6.00000000	8.00000000	0.50000000	30.00000000	1.00000000	13.333
CTS	4	9.50000000	1.29099445	8.00000000	11.00000000	0.64549722	38.00000000	1.66666667	13.589
CTP	4	9.75000000	0.95742711	9.00000000	11.00000000	0.47871355	39.00000000	0.91666667	9.820
CTOT	4	26.75000000	2.21735578	25.00000000	30.00000000	1.10867789	107.00000000	4.91666667	8.289
VILLAGE=3									
ATB	11	4.18181818	1.40129810	2.00000000	7.00000000	0.42250727	46.00000000	1.96363636	33.509
ATS	11	4.27272727	1.73729152	3.00000000	8.00000000	0.52381318	47.00000000	3.01818182	27.696
ATP	11	5.90909091	2.02259959	3.00000000	9.00000000	0.60983672	65.00000000	4.09090909	34.229
ATOT	11	14.36363636	2.34057975	13.00000000	21.00000000	0.76601362	158.00000000	4.45454545	15.526
BTB	11	6.00000000	0.89442719	4.00000000	7.00000000	0.26967994	66.00000000	0.80000000	14.907
BTS	11	9.27272727	1.55505862	7.00000000	11.00000000	0.46886534	102.00000000	2.41818182	16.770
BTP	11	10.09090909	0.83120941	9.00000000	11.00000000	0.25061907	111.00000000	0.69090909	8.237
BTOT	11	25.36363636	2.15743956	21.00000000	28.00000000	0.65049250	279.00000000	4.65454545	8.506
CTB	5	6.40000000	0.54772256	6.00000000	7.00000000	0.24494897	32.00000000	0.30000000	8.558
CTS	5	7.80000000	2.68328157	4.00000000	10.00000000	1.20000000	39.00000000	7.20000000	34.401
CTP	5	9.60000000	1.14017543	8.00000000	11.00000000	0.50990195	48.00000000	1.30000000	11.877
CTOT	5	23.80000000	3.11448230	20.00000000	27.00000000	1.39283883	119.00000000	9.70000000	13.086
VILLAGE=4									
ATB	13	6.61538462	2.18891959	1.00000000	8.00000000	0.60687826	68.00000000	4.79461826	47.253
ATS	13	5.38461538	2.36426386	3.00000000	10.00000000	0.65572881	70.00000000	5.58974359	43.908
ATP	13	5.00000000	2.04124145	3.00000000	9.00000000	0.56613852	65.00000000	4.16666667	40.825
ATOT	13	15.00000000	3.48061725	7.00000000	24.00000000	1.49786172	195.00000000	29.16666667	36.804
BTB	13	5.69230769	1.88788389	3.00000000	9.00000000	0.52360456	74.00000000	3.56410256	33.164
BTS	13	7.92307692	2.13937446	4.00000000	11.00000000	0.59333572	103.00000000	4.57692308	27.002
BTP	13	9.07692308	2.46316139	5.00000000	12.00000000	0.68370726	118.00000000	6.07692308	27.158
BTOT	13	22.69230769	3.83958688	14.00000000	29.00000000	1.39772991	295.00000000	25.39743590	22.208
CTB	3	6.66666667	0.57735027	6.00000000	7.00000000	0.33333333	20.00000000	0.33333333	8.660
CTS	3	6.66666667	2.51661148	4.00000000	9.00000000	1.45296631	20.00000000	6.33333333	37.749
CTP	3	9.33333333	2.08166600	7.00000000	11.00000000	1.20185043	28.00000000	4.33333333	22.304
CTOT	3	22.66666667	4.93288286	17.00000000	26.00000000	2.84800125	68.00000000	24.33333333	21.763

Appendix G3
When One and Three are Correct

VARIABLE	N	MEAN	STANDARD DEVIATION	MINIMUM VALUE	MAXIMUM VALUE	STD ERROR OF MEAN	SUM	VARIANCE	C.V.
VILLAGE=0									
ATB	9	1.55555556	1.66666667	0.00000000	5.00000000	0.55555556	14.00000000	2.77777778	107.143
ATS	9	2.88888889	1.69148193	0.00000000	6.00000000	0.56382731	26.00000000	2.86111111	58.551
ATP	9	1.77777778	1.30170828	0.00000000	4.00000000	0.43390276	16.00000000	1.69444444	73.221
ATOT	9	6.22222222	3.63241579	2.00000000	12.00000000	1.21080526	56.00000000	13.19444444	58.378
BTB	0	.	.	.	.	.	.	.	.
BTS	0	.	.	.	.	.	.	.	.
BTP	0	.	.	.	.	.	.	.	.
BTOT	0	.	.	.	.	.	.	.	.
CTB	0	.	.	.	.	.	.	.	.
CTS	0	.	.	.	.	.	.	.	.
CTP	0	.	.	.	.	.	.	.	.
CTOT	0	.	.	.	.	.	.	.	.

VARIABLE	N	MEAN	STANDARD DEVIATION	MINIMUM VALUE	MAXIMUM VALUE	STD ERROR OF MEAN	SUM	VARIANCE	C.V.
TRIP=0									
ATB	33	4.09090909	2.52937290	0.00000000	8.00000000	0.44030731	135.00000000	6.39772727	61.829
ATS	33	5.15151515	2.38643579	0.00000000	10.00000000	0.41542515	170.00000000	5.69507576	46.325
ATP	33	5.15151515	2.92746917	0.00000000	11.00000000	0.50960697	170.00000000	8.57007576	56.827
ATOT	33	14.39393939	7.11924941	2.00000000	26.00000000	1.23930225	475.00000000	50.68371212	49.460
BTB	24	6.20833333	1.53167049	3.00000000	9.00000000	0.31265093	149.00000000	2.34601449	24.671
BTS	24	8.45833333	1.91059214	4.00000000	11.00000000	0.38999799	203.00000000	3.65036232	22.583
BTP	24	9.54166667	1.97768346	5.00000000	12.00000000	0.40369295	229.00000000	3.91123188	20.727
BTOT	24	24.20833333	4.28322478	14.00000000	29.00000000	0.87430760	581.00000000	18.34601449	17.693
CTB	0	.	.	.	.	.	.	.	.
CTS	0	.	.	.	.	.	.	.	.
CTP	0	.	.	.	.	.	.	.	.
CTOT	0	.	.	.	.	.	.	.	.
TRIP=1									
ATB	8	5.37500000	2.19983766	3.00000000	9.00000000	0.77776806	43.00000000	4.83928571	40.927
ATS	8	6.00000000	2.44948974	3.00000000	10.00000000	0.86602540	48.00000000	6.00000000	40.825
ATP	8	6.75000000	3.19597962	3.00000000	12.00000000	1.12994963	54.00000000	10.21428571	47.348
ATOT	8	18.12500000	6.19763780	13.00000000	31.00000000	2.19119584	145.00000000	38.41071429	34.196
BTB	8	7.12500000	0.64086994	6.00000000	8.00000000	0.22658174	57.00000000	0.41071429	8.995
BTS	8	8.50000000	1.60356745	7.00000000	11.00000000	0.56694671	68.00000000	2.57142857	18.865
BTP	8	10.87500000	0.33355339	10.00000000	11.00000000	0.12500000	87.00000000	0.12500000	3.251
BTOT	8	26.50000000	2.20389266	24.00000000	30.00000000	0.77919372	212.00000000	4.85714286	8.317
CTB	8	6.37500000	0.74402381	5.00000000	7.00000000	0.26305214	51.00000000	0.55357143	11.671
CTS	8	7.12500000	2.41646140	4.00000000	10.00000000	0.85436812	57.00000000	5.83928571	33.915
CTP	8	9.50000000	1.41421356	7.00000000	11.00000000	0.50000000	76.00000000	2.00000000	14.886
CTOT	8	23.00000000	3.62550787	17.00000000	28.00000000	1.28173989	184.00000000	13.14285714	15.762
TRIP=2									
ATB	8	5.37500000	2.38671921	2.00000000	8.00000000	0.84383267	43.00000000	5.69642857	44.404
ATS	8	7.37500000	1.59798981	6.00000000	9.00000000	0.56497471	59.00000000	2.55357143	21.668
ATP	8	7.00000000	3.16227766	3.00000000	12.00000000	1.11803399	56.00000000	10.00000000	45.175
ATOT	8	19.75000000	5.84929788	14.00000000	29.00000000	2.06883918	158.00000000	34.21428571	29.617
BTB	8	6.50000000	1.92724822	3.00000000	9.00000000	0.68138514	52.00000000	3.71428571	29.650
BTS	8	9.75000000	1.83509834	8.00000000	11.00000000	0.64896253	78.00000000	1.07142857	10.616
BTP	8	10.12500000	1.35620268	9.00000000	12.00000000	0.47949006	81.00000000	1.83928571	13.395
BTOT	8	26.37500000	3.24862608	21.00000000	30.00000000	1.14856277	211.00000000	10.55357143	12.317
CTB	8	7.37500000	0.91612538	6.00000000	8.00000000	0.32389923	59.00000000	0.83928571	12.422
CTS	8	9.50000000	0.92582010	8.00000000	11.00000000	0.32732684	76.00000000	0.85714286	9.745
CTP	8	10.50000000	1.19522861	9.00000000	12.00000000	0.42257713	84.00000000	1.42857143	11.383
CTOT	8	27.37500000	1.99553072	25.00000000	30.00000000	0.78552665	219.00000000	3.98214286	7.290

APPENDIX H

Comparison of Villages with Level of Literacy

On the chart:

. = Not answered
2 = "Yes, I read and write, I went to the first grade."
3 = "Yes, I read and write, I finished second, third, fourth or fifth grades."
4 = "Yes, I read and write, I finished sixth grade."
5 = "Yes, I read and write, I went to high school."
6 = "Yes, I read and write, I went to adult education classes."
7 = "No, I do not read or write."
8 = "No, I do not read or write, but I went to the first grade."
9 ="No, I do not read or write, but I finshed second or third grade."

Appendix H
Comparison of Villages by Level of Literacy

FREQUENCY / PERCENT / ROW PCT / COL PCT	.	2	3	4	5	6	7	8	9	TOTAL
Control	0	0	0	0	0	0	4	0	5	9
		0.00	0.00	0.00	0.00	0.00	7.55	0.00	9.43	16.98
		0.00	0.00	0.00	0.00	0.00	44.44	0.00	55.56	
		0.00	0.00	0.00	0.00	0.00	21.05	0.00	55.56	
Laureles	0	1	3	1	0	0	3	0	0	8
		1.89	5.66	1.89	0.00	0.00	5.66	0.00	0.00	15.09
		12.50	37.50	12.50	0.00	0.00	37.50	0.00	0.00	
		25.00	27.27	20.00	0.00	0.00	15.79	0.00	0.00	
Jutosa	0	0	3	1	0	1	3	0	1	9
		0.00	5.66	1.89	0.00	1.89	5.66	0.00	1.89	16.98
		0.00	33.33	11.11	0.00	11.11	33.33	0.00	11.11	
		0.00	27.27	20.00	0.00	100.00	15.79	0.00	11.11	
Caraos	1	2	3	2	0	0	4	1	1	13
		3.77	5.66	3.77	0.00	0.00	7.55	1.89	1.89	24.53
		15.38	23.08	15.38	0.00	0.00	30.77	7.69	7.69	
		50.00	27.27	40.00	0.00	0.00	21.05	50.00	11.11	
Jardines	0	1	2	1	2	0	5	1	2	14
		1.89	3.77	1.89	3.77	0.00	9.43	1.89	3.77	26.42
		7.14	14.29	7.14	14.29	0.00	35.71	7.14	14.29	
		25.00	18.18	20.00	100.00	0.00	26.32	50.00	22.22	
TOTAL	.	4	11	5	2	1	19	2	9	53
	.	7.55	20.75	9.43	3.77	1.89	35.85	3.77	16.98	100.00